A COMPARATIVE STUDY OF URBAN GREEN AREA PLANNING

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Abstract
Green areas in cities provide social, ecological, cultural and economical values. Furthermore, the effects and importance of green areas on human well-being in the context of day to day life have been investigated in previous studies. The creation of green structures, and the quality and quantity of green areas are defined at different levels of urban planning in municipalities.

The aim of this research was to determine which factors influence the green area planning process. The study compared the planning processes of Tampere in Finland and Stuttgart in Germany. It also analysed the prevailing trends of the cities and the participation of inhabitants. The study utilized qualitative study methods. The material included documents, reports and laws relating to the planning processes. The themed interviews were carried out in the city offices of Tampere and Stuttgart.

The results indicated that landscape and green structure planning were compulsory parts of land-use planning processes in Stuttgart, required by laws, and are applicable nation-wide in Germany. The aims of a Landscape Plan and Green Structure Plan were legalized in a Preparatory Land Use Plan and in a Local Development Plan. In Finland, Tampere had good regulations concerning green area planning, but these were not applicable throughout the whole country. The aims of the green area plans could be legalized in Local Development Plans or in Federal Building Code, but there were not as many specified symbols expressing the content of green areas than in Stuttgart (Germany). A special difference was also the compensation method and habitat network planning that influenced the planning process at many levels in Stuttgart, identifying every green space as a part of a green structure. In addition to ecological values, also city parks and gardens were developed in exhibitions and competitions throughout Germany.

The aim of Landscape planning is to combine natural elements and values as part of a landscape and a green structure of every city in Finland. It would also provide ecological development. With increasing knowledge about biodiversity and importance for human well-being, different kinds of green areas in the vicinity could also become more familiar and acceptable to citizens. Resulting from this study, future recommendations would be to develop landscape planning, to include more strategic green area planning based on Land Use Act and utilize interaction with citizens. Furthermore, an understanding and consideration of the ecological and physiological aspects of the environment and the using indicators to measure the fruition of the aims should be mandatory during the co-operational planning processes in order to reach the aims.

Keywords
Landscape- and green area planning, nature, playgrounds, a comparative study

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Viheralueilla on kaupungeissa yhteiskunnallisia, kulttuurisia ja taloudellisia arvoja. Lisäksi viheralueiden merkitys ihmisen terveyden edistämiseen ja hyvinvointiin on todistettu monissa tutkimuksissa. Kaupunkien viherverkostot sekä viheralueiden laatu ja määrä määrittyy kaupunkisuunnittelun eri vaiheissa.

Tässä tutkimuksessa selvitetään viheralueiden suunnitteluun vaikuttavia tekijöitä vertaamalla Tampereen (Suomi) ja Stuttgartin (Saksa) suunnitteluprosesseja. Myös suunnitteluun vaikuttavia ajankohtaisia kehityssuunnista ja asukkaiden osallistumisesta on kerätty tietoa haastattelemalla suunnitteluun osallistuvia henkilöitä. Aineiston analysoinnissa käytettiin laadullisen tutkimuksen menetelmiä. Tutkimusmateriaali koostui haastattelujen lisäksi kaupunkien selvityksistä, toimintasuunnitelmista sekä laeista, jotka liittyvät viheralueiden suunnitteluun.

Tulokset osoittivat, että Stuttgartissa maisema- ja viherrakennesuunnittelu olivat pakollisia vaiheita suunnitteluprosesseissa, koska ne perustuivat lakeihin. Maisema- ja viherrakennesuunnittelun tavoitteet tulivat lainvoimaisiksi, kun ne sisällytettiin yleiskaavaan tai asemakaavaan. Laki oli sama koko Saksassa, vaikka myös osavaltioilla oli omia tarkentavia lakeja. Tampereella oli erittäin hyviä selvityksiä ja ohjeistuksia maisema- ja viheraluesuunnitteluun, mutta ne eivät olleet paikallisuutensa vuoksi käytössä muualla Suomessa. Maisema- ja viheraluesuunnittelun sisällön tavoitteita on mahdollista Suomessakin saada lainvoimaisiksi kaavojen ja paikallisten rakennusmääräysten kautta, mutta tällä hetkellä ei ole käytössä yhtä paljon viheralueita ja luonnon alueita määritteleviä yksityiskohtaisia kaavamerkintöjä kuin Stuttgartissa (Saksassa). Suunnitteluprosesseissa erona oli myös se, että Stuttgartissa kompensaatio menetelmä ja biotooppiverkostosuunnittelu vaikuttivat monissa eri vaiheissa viheralueiden suunnitteluun. Viherverkoston jokainen osa ja alue määriteltiin myös näiden näkökulmien kautta. Ekologisten arvojen lisäksi Saksassa kehitettiin puistoja ja viheralueita valtakunnan laajuisesti alan näyttelyissä ja kilpailuissa.

Maisemasuunnittelun tavoitteena on yhdistää luonnon eri elementit ja arvot kokonaisuudeksi Suomen jokaisen kaupungin maisemassa ja viherverkostossa, jolloin myös ekologiset näkökulmat tulevat paremmin otetuksi huomioon. Tietoisuutta viheralueiden merkityksestä biodiversiteetin ja ihmisten hyvinvoinnin edistämiseksi voidaan parantaa ja saada asukkaat hyväksymään myös erilaiset viheralueet asumisen läheisyydessä. Tutkimuksen perusteella voidaan suositella, että Suomessa tulee kaavoitukseen liittyvää maisema- ja viheraluesuunnittelua kehittää nimenomaan maankäyttö- ja rakennuslaissa. Lisäksi myös vuorovaikutuksen keinoja tulisi hyödyntää. Erityisen tärkeää olisi myös ympäristöpsykologisen ja ekologisen tietämyksen lisääminen ja tavoitteiden toteutumisen mittaaminen suunnitteluprosesseissa, jotta viheralueiden sisällön tavoitteet toteutuisivat.

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1 INTRODUCTION

1.1 Urbanisation and its effects on the living environment

According to the UN (2009), approximately 80% of the population in EU countries live in cities or other urban areas. Urbanization is rapidly causing changes in societies. A large biodiversity loss is evidenced in cities due to their expansion (Global Issues 2009, Gordon et al. 2009). The threat is from both the disintegration of green spaces and changes in the natural areas and for these reasons ongoing urbanization can cause problems both within and outside cities. The current situation in many cities can be considered as a dichotomy between the expansion and the importance of green areas (Sandström 2002, Yli- Pelkonen 2008).

Urban green spaces are vital for inhabitants. They provide many kinds of benefits such as recreation, different activities and aesthetic experiences. Furthermore, green areas are the only way for some people to experience nature in their day to day life. Children and often also parents with small children spend most of their time in the vicinity of their homes. Elderly people and people with impaired mobility are also dependent on their immediate environment. People need different kinds of nature environments during their lifetimes in order to support human growth including mental and physical aspects of development. City planners should therefore take into account the need of different age groups of citizens (Chiesura 2004).

1.2. Nature in green areas

1.2.1 The meaning of nature in human life

Nature is usually defined as large green areas around and close to cities. Less attention is paid to small green areas and their ability to provide nature experiences. The idea of nature varies from place to place and from culture to culture. Nature can be both given and constructed (Whiston Sprirn1997).

The importance of nature for human well-being has been shown in many empirical researches (Ulrich 1983, Kaplan & Kaplan 1989, de Vries et al. 2003, Groenewegen et al. 2006). Nature can be a favourite place to somebody, or nature can provide restorative responses to those experiencing it (Ulrich 1983, Kaplan & Kaplan 1989). Some indicators are available evidencing the direct links of nature on human health. Those are self-rated health in the context of nature and, for example, decline in low blood pressure and relaxation (Ulrich 1983). To demonstrate the indirect influences on human health, Health Council of the Netherlands (2004) concluded five intermediary mechanisms: 1) recovery from stress, 2) encouragement to exercise, 3) social contacts, 4) stimulation of development in children and 5) stimulation of personal development.

1.2.2 The ecological importance

City ecology has an increasing importance, because urban expansion needs more and more land. Many alternative ecosystems have replaced the natural ones. They take place everywhere in a city, not only in green areas. According to Sandström et al. (2004) the urban landscape was becoming very important for maintaining biodiversity. They also stated that biodiversity can be promoted by linking ecosystems and habitats as a network and that comprehensive green area plans should include detailed information about land use and biodiversity. Sandström (2002) also reported that city ecology can be promoted in green areas in many ways. Preservation of flora and fauna, improvement of climate, reduction of erosion are the important factors. In addition, a technical function to cope with storm waters is very important nowadays.

Yli-Pelkonen (2008) defined ecosystems as green area amenities. This means that like other classified green areas of cities, ecosystems are also considered to be a utility for inhabitants. Furthermore, ecosystem amenities had been divided by Yli-Pelkonen into provisioning amenities (material goods, drinking water, food), cultural amenities (recreational use, heritage, education and knowledge transfer) and regulating and supporting amenities (processes of hydrology, climate or earth).

1.3. Green area designing

1.3.1 Green area network and landscape architecture

A task of landscape and green area planning in growing cities is to develop a green network map, which can regulate the management of the green areas. Management of green areas in cities includes political and economical aspects in addition to ecology and human issues. Indicators such as the number and area of public green spaces per inhabitant have been used to measure the attractiveness of a city. This analysis does not give any indication about the content and quality of green areas, their situation in a city structure or accessibility (Chiesura 2004). Greenery and park management indicators had been given in a Baltic University Urban Forum Report V (BUUF 2003), which presented many indicators used to reflect the quality of the green structures. They concerned size of greeneries, ecological properties of green structures, functionality, accessibility, maintenance and also the categories of green structures based on law in Baltic States. Ståhle (2005) in the COST 11 project determined that a green structure included a local landscape, which components provided life quality for citizens, habitats for biodiversity and aspects of sustainable development. According Werquin et al. (2005) green structure was the green area system of a city consisting of interaction between built-up areas, green spaces and green connections. Green connections, and/or greenways have numerous benefits within a city structure. By connecting green areas and forming linear corridors of green spaces, protection of natural resources, opportunities for recreation and preservation of historic and cultural resources can be provided (Fabos 1995).

Landscape architecture plays an important role in the compact town plan and in linking green area planning to town planning. The roots of landscape architecture can be found in agriculture, including gardening, horticulture and forestry. Furthermore, engineering, architecture, arts and ecology as science are the fundamental factors for landscape design (Whiston Sprirn 1997). Landscape consists of different sectors, such as nature, culture and aesthetics. That is why landscape planning is an important tool in combining different aims in the provision of a good infrastructure.

1.3.2 The connection with urban design

According to Aura (1982) the content of green spaces is connected to the city structure. Furthermore, it is feasible to examine the environmental perspective, when the aim is to plan and design cites from the human perspective. Aura et al. (1997) stated that architecture and urban planning are important factors in developing environmental attitudes of citizens. The ecological, psychosocial and aesthetic points should meet the requirements of the users (Aura et al. 1997).

Ecological town planning includes landscape architecture and sustainable development in a holistic planning process (Lapintie 1995). When theoretical Town-vision plan was prepared by designers Kronlöf, Vihinen and Rihtniemi, the aim was to plan a green structure which suits to both people from urban life and to people from rural and agrarian culture. Different kinds of habitats and micro-climate were important factors in ecological town planning processes (Lapintie 1995).

1.3.3 Multiple use of green areas

The function of green areas in cities can also be evaluated on the basis of their utilisation. Open space sociologists examine the use of open spaces. Hence, it has been difficult to determine which factors make the place a favourite one, when another place with the same facilities is not appreciated by users. The most important factors from the aspect of use according to Gälzer (2001) are:

- Accessibility, the distance should be about 10 minutes from home
- The size, generally big areas are accepted better than small areas
- Safety
- Attractiveness, play facilities, seating facilities, something to look at, water in different forms, a place to go when it rains, flowering plants

Multiple uses of green areas can be listed. Visitors are aware of the symbolic use of aesthetics for decoration in parks and historical gardens. Green areas have different functions for leisure, health and pedagogy (Gälzer 2001).

1.3.4 Participation of inhabitants

Inhabitants participate in the planning process for land use and green areas in different ways. The laws in the EU presume that plans are displayed for the public to see and to comment on. Additional ways of participation are carried out in some cities. Gälzer (2001) separated citizen information from citizen participation, which is an open and dynamic process. A park which has been planned and constructed by inhabitants, particularly by youngsters, will be used and maintained well (Gälzer 2001).

A study carried out by the Technical University Finland has combined environmental and psychological aspects with geographical methods, especially geographic information system GIS. Information about the experience of inhabitants relating to quality factors in their living environment provided a crucial guide for planning processes (Kyttä & Kahila 2006).

Questionnaires about favourite places collect information about social and cultural values. This information identifies significant information about and the values of areas that can be used by authorities and decision makers. Sociotop mapping allows citizens to express their feeling for places such as a beautiful place, a favourite place or other descriptions such as peacefulness, silence, freedom and good facilities (Tyrväinen 2004).

1.5 Short history of green areas in Germany and Finland

Many cities in the EU area have a long history relating to green areas and parks. Cities in Finland are younger and usually smaller than the European cities.

Marketplaces and squares were the common open spaces in Central European cities in the 18th century. Some small gardens and monastery gardens were present in cities as well. Hunting grounds were outside the city, but the castles with their large open green areas created open space inside the city structure. However, access to these areas was not always permitted for citizens (Gälzer 2001).

Parks have always been an expression of cultural development. Renaissance and baroque gardens as well as landscape parks and modern parks from the previous decades have had their function in the development of society. The development of green politics in Germany started at the beginning of the 20th century. The first reference from the green system in the Ruhr area is from 1912 (Gälzer 2001). The growth of cities and related high population density has been the reason to develop the structure of green areas in Germany.

By the implementation of land use planning, trees and plants appeared in public town areas in Finland at the beginning of the 18th century. The development of green spaces was associated with the need for fire safety in areas with wooden buildings. Furthermore, some parks were situated around bathing establishments and in city centres. The systematic planning of green spaces in the cities in Finland started at the end of the 19th century (Häyrynen 2001).

Famous landscape and garden architects from the beginning of 20th century have influence the development of green spaces in Finland. Different kinds of green areas were registered at the beginning of 20th century and the aim was to create a whole system of green spaces for recreation in the city (Häyrynen 2001). While urbanisation started at the beginning of the 19th century in Central Europe, in Finland it took place in the middle of 19th century. This short time period of residential area building has influenced the environment. The new areas did not respect the existing city structure or nature preservation (Holm et al. 1987).

2 OBJECTIVES

The laws and practices concerning urban and green area planning processes differ from country to country. Study of the laws and practices provides access to different priorities relating to the green area planning process on a practical level. The way in which green areas benefit cities and their inhabitants by improving quality of life and city ecology is addressed in the literature review. The research questions have been answered by comparing and analyzing the planning processes, strategies and practices in Tampere in Finland and in Stuttgart in Germany. Themed interviews were carried out in order to map the trends and the approaches concerning green area planning in the cities.

2.1 The comparison study

The aim is to answer the questions, what kind of content and quality of green areas can be defined through laws and stipulations and how strategies and trends influence the content.

The examination starts by introducing the planning processes of the countries as a whole, because the contents of green areas are determined at different levels of urban land use planning processes. The studied cities are Tampere in Finland and Stuttgart in Germany

The definition of green areas in Finland is:

> *"Green areas includes environments which belong to the communities, such as yards, gardens, parks, open spaces and market places with vegetation, neighbourhood woodland and other recreational areas and cultural landscapes"* (Viherympäristöliitto 2008).

The definition of green areas in Germany is:

> *"The vegetation covered open space or open space with plants that service the city hygiene, and that break up the city structure and serve the*

recreational use. Green areas are classified in Land Use Plans, and also in the municipalities, green and park areas, central parks situated in residential areas, city forests, traffic green areas, allotments, sport-, play- and swimming places, graveyards, promenades, tree lines and green constructed city places" (Geoinformatik 2008).

2.2 The research questions

The aim of the study was to find out

- What factors influence the content of green areas?
- To analyze the reasons for observed similarities or differences in the planning process between the cities
- If the processes differ because of cultural or other reasons, can the results still be utilized and generalized in Finland?
- The prevailing trends and approaches in both countries

3 MATERIAL AND METHODS

3.1 Concept of land-use planning in Finland and in Tampere

Several laws and stipulations impact the land use planning processes at the municipality level in Finland. The basic ones are the Land Use and Building Act (in Finnish: Maankäyttö- ja rakennuslaki, MRL), the Act on Environmental Impact Assessment Procedure (in Finnish: Ympäristövaikutusten arviointi, YVA) and the Nature Conservation Act (in Finnish: Luonnonsuojelulaki, LSL). The Land Use and Building Act includes many objectives that should be achieved by interactive planning. Biodiversity and recreation should be included in the planning processes (Ympäristöministeriö 2008a).

3.1.1 Preparatory Land Use Plan

Preparatory Land Use Plan (in Finnish: Yleiskaava, see Appendix 1), is a structure plan for the economy, housing, traffic and other public facilities and utilities. The plan is

usually prepared for 10 years and its scale is 1: 10 000. The plan can cover the entire municipality or only parts of it. The Preparatory Land Use Plan consists of a map, documents and an explanatory report. It is possible to guide the theme planning in the Preparatory Land Use Plan, such as landscape planning which determines recreation and nature biodiversity (Ympäristöministeriö 2008b).

3.1.2 Local Development Plan

Local Development Plan (in Finnish: Asemakaava, see Appendix 2) rules the development of the community and it based on Preparatory Land Use Plan. The legal basis is determined in the Land Use and Building Act (in Finnish: Maankäyttö- ja rakennuslaki, MRA). Articles of the Building Act and their stipulations are used to influence the quality of the built environment. The scale of the Local Development Plan is usually 1:2000. The Land Use and Building Act emphasizes public participation and the estimation of future influences caused by construction. There are usually specific building regulations in every municipality in addition to the Local Development Plan. These regulations can guide preservation of cultural and nature values as well as ensuring a healthy and locally good environment (Ympäristöministeriö 2008b).

3.1.3 Act on Environmental Impact Assessment Procedure

The Act on Environmental Impact Assessment Procedure EIA (in Finnish: Ympäristövaikutusten arviointi, YVA) requires that planners carry out an estimation of environmental impacts before construction. The aim is to bring these impacts into consideration during the planning and decision making processes and in that way evaluate the disadvantages and the benefits of their inclusion in the whole project. At the same time there must be an increase in both available information for stakeholders and their opportunities to participate in the planning process. EIA includes for example impacts on soil, water, air, climate, organisms and biological diversity (Ympäristöministeriö 2008c).

3.2 Tampere and the local regulations

Tampere is situated 170 km from the South coast of Finland to the North. The land area is 688 km² of which 165 km² is water. The population density is 390 inhabitants / km² with 204 337 inhabitants in total.

Table 1. Statistical information about green areas and other green spaces of Tampere

TAMPERE	
Green areas in Local Development Plan:	2013 hectares 100 m²/inhabitant
Parks and other developed green areas	444 hectares 22 m²/inhabitant
Landscape fields and landscape meadows	131 hectares
Woodland	1229 hectares
Protected areas	440 hectares
Parks in other use	264 hectares
All green areas:	
Recreational woodland	4215 hectares
Camping and hiking woodland	1887 hectares
Productive forests	1456 hectares
Average temperature	3-4 °C
Situation	61° 51´N

Source: Tampereen kaupunki 2008. Suunnittelupalvelut 2008. Tampere: pp.20

3.2.1 Environment and Landscape Report

The recently completed Environment and Landscape report (KYMS) of Tampere city centre assesses the values of green spaces in Tampere. Although a valid green structure plan existed, the new comprehensive report (KYMS) was made to protect ecological

balance between the landscape and townscape, and also to preserve recreation areas that should not be built or used as building areas (Tampereen kaupunki 2008a). The important task also was to describe the character of green areas as an integral part of an environment, as well as to include green connections in the green structure and also to guarantee the quality and quantity of green areas. In addition, the natural habitats, including animals and the ecological network in the city area have been studied and analyzed in KYMS (Torniainen 2008).

The playgrounds in Tampere were divided into different categories due to their location. The three classes for the playgrounds in the Environment and Landscape Reports are:

1. Neighbourhood playgrounds
2. District playgrounds
3. Area playgrounds

A land-use classification system containing five main classes and 32 subclasses (see Appendix 14, Table 3) is used to categorize green areas in the land-use planning processes.

Table 2. The categories of green areas in land-use planning

THE MAIN CLASSES	**THE SUBCLASSES**
Public green areas	Cityparknet Cityparks Natural recreation areas Landscape and naturally maintained areas Sport- and recreation areas Protective green areas
Other green areas	Traffic green areas Special areas
Protected areas, nature reserves and other areas with special value	
Agricultural and forestry areas	
The green parts of the city blocks	

Source: Tampereen kaupunki. 2008. Kantakaupungin ympäristö- ja maisemaselvitys. Tampere: pp. 84

3.2.2 Development Program of Green Areas

The Development Program of Green Areas (in Finnish: Viheralueohjelma, VAO) includes all green areas in the Preparatory Land Use Plan. It is a program for the years 2004 - 2015 and it directs planning, construction, rebuilding and maintenance. It has been prepared in conjunction with the different work units of Tampere city. The objectives and needs of green areas have been mapped out in interaction with stakeholders. The program directs the development of the green structure and the content of green areas. It is the basis for prioritising the budget (Tampereen kaupunki 2005).

The implementation of the Development Program of Green Areas includes Local Green Area Plans (in Finnish: Alueelliset viheraluesuunnitelmat, VAS). They are made for specific areas during the period 2004 - 2015 (Tampereen kaupunki 2005).

3.2.3 Maintenance Classification in Green Areas

Maintenance Classification in Green Areas (see Appendix 3 and Appendix 14) has been developed to be used from planning to construction and maintenance. The classification is designed to be used nationwide in Finland. It can be used, for example, to assess the level of maintenance and its costs. The maintenance classes for green areas are defined on the basis of the existing natural conditions and the intended construction level. The estimation is also made on the basis of how green area facilities and recreation facilities are situated in the city structure. Supplementary instructions are needed for implementing the aims of maintenance classification. (Viherympäristöliitto 2007).

3.2.4 Green area planning process in the context of land-use planning in Tampere

Landscape analysis and the landscape structure are drawn up for the Preparatory Land Use planning in Tampere. Environment and landscape documents are to examine the organic and inorganic natural environment. Range of living organisms and different habitats are mapped to ascertain the ecological network and determine important areas of ecological values (Anttonen et al 2008). Development program of green areas (VAO) can be used in many levels of land-use planning.

The Local Development Plan includes areas for parks, playgrounds, sports and other facilities. A general green area plan is usually prepared at the same time as the Local Development Plan. The object is to design parks and building areas as a fully inclusive project. This plan will then be incorporated into the municipal Federal Building Code. KYMS, VAO and Maintenance Classification are also used at the level of Local Development Plan.

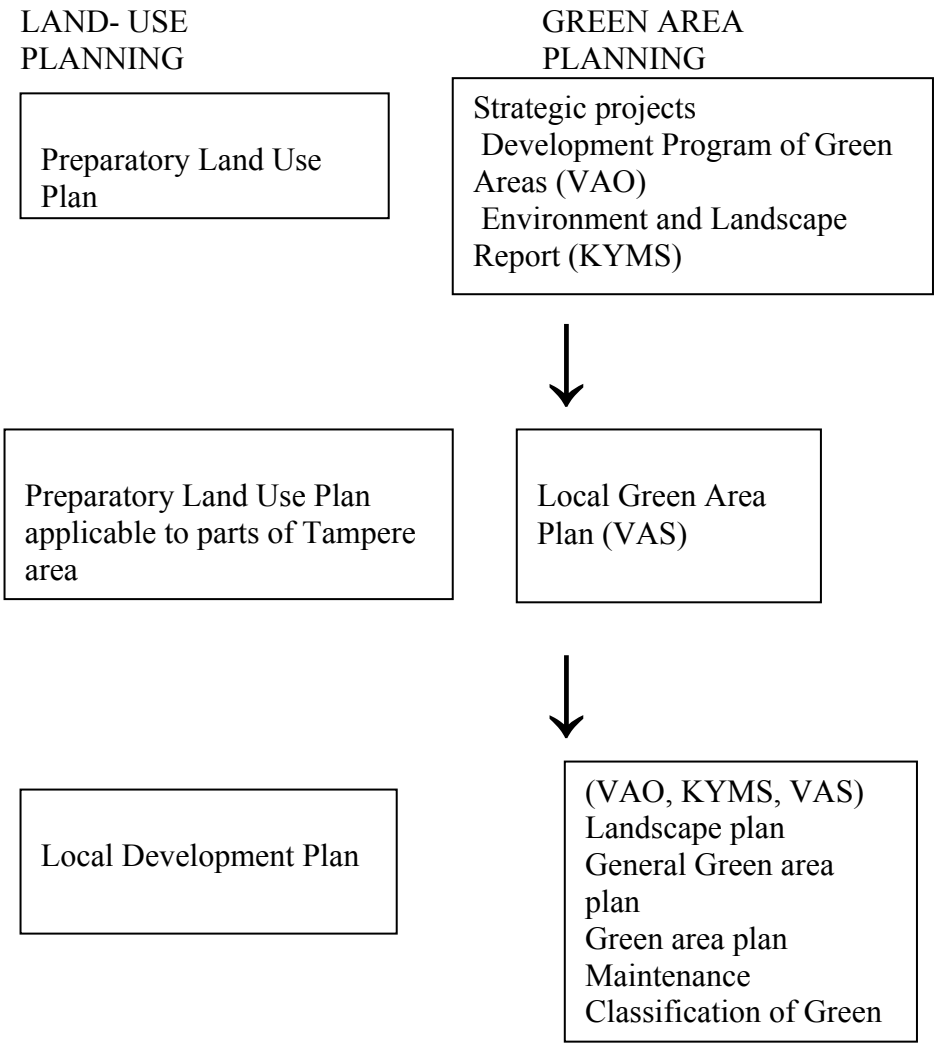


Figure 1. Levels of land-use and green area planning in Tampere

Source: Tampereen kaupunki 2008 b. Suunnittelupalvelut 2008. Tampere: pp 14.

3.2.5 Indicators used in planning

Number of green areas and surface area are used as indicators in land-use planning process. Measurement units are, for example, area m² / inhabitant or percentage of the whole planning area. All kinds of green areas are counted together irrespective of content, size or situation.

A special method for evaluating green areas has been developed in Environment and Landscape report (KYMS). Green areas consist of three factors, which are nature, use and culture. Every part is evaluated by using seven criterions. The threats and values of these criterions are written assessments. The final result of the evaluation is a table, in which different stages of black colour describe the conclusion. Inhabitants will be participated in the evaluation in the future (Torniainen 2008).

3.3 The concept of land use planning in Germany and in Stuttgart

The municipal planning in Stuttgart is based on the Federal Building Code (in German Baugesetzbuch, BauGB) and the Environmental Impact Assessment (in German: Umweltprüfung UP). The Nature Protection Statute of Baden-Wuerttemberg (in German: Naturschuzgezetz NatSchG Baden –Württemberg) and the Federal Nature Conservation Act (in German: Bundesnaturschutzgesetz) are the basic laws governing the Landscape Plan (in German: Landscahftsplan, LSP) and the Local Green Structure Plan (in German Grünordnungsplan, GOP) (City of Stuttgart 2007).

3.3.1 Preparatory Land Use Plan

The Federal Building Code is the legal basis of the Preparatory Land Use Plan (in German: Flächennutzungsplan, FNP, see Appendix 4).

The Preparatory Land Use Plan details and schedules the use of land within the municipality. It outlines the existing or future land-use including residential and commercial areas, transportation, green spaces, agricultural and forestry land. It consists

of a map that is made in the scale is of 1:10 000 and of an explanatory report. It is made for ten to fifteen years. The current Preparatory Land Use Plan is valid until 2010 (City of Stuttgart 2007).

3.3.2 Urban Framework Plan

The Urban Framework Plan (in German: Städtebaulicher Rahmenphlan) is a supplementary plan and it is not legally binding. It is an important tool for steering development in urban areas. The Urban Framework Plan has the same structure as the Local Design Plan, but the public places and streets are shown more precisely. The presentation form and the symbols are easier for non- professionals to understand (City of Stuttgart 2007).

3.3.3 Local Development Plan

The Local Development Plan (in German: Bebaungsplan, B-Plan, see Appendix 5) is made on the basis of the Preparatory Land Use Plan and the legal basis is the Federal Building Code. The Environmental Impact Assessment has to be carried out during the planning process. The period of validity is unlimited for the adopted plan. The scale of Local Development Plan is usually 1:1000 or 1:500 (City of Stuttgart 2007).

3.3.4 Environmental Impact Assessment Procedure Act

The objective of the Environmental Impact Assessment Procedure is to assess positive or negative impacts on the natural environment. The EIA includes for example impacts on soil, water, air, climate, organisms and biological diversity (City of Stuttgart 2007).

An Additional system to the EIA, the Strategic Environmental Impact Assessment is used in Netherlands, Great-Britain, Denmark and in Germany. It does not examine the impacts on existing projects or plans, but its aims are incorporated into planning processes. This system is under the consideration in European Union (Gälzer 2001).

3.3.5 Compensation, measuring mitigation of environment

The compensation rule (in German: Eingriffregelung- Impact regulation) is included in the German Federal Nature Conservation Act. It is also a method in the Environmental Impact Assessment in determining environment and the impacts of land-use on it within the planning processes (Rundcranz & Skärbäck 2003)

The compensation rule governs all kind of land-use and infrastructure construction work. The main task is to reach a balance between the different kinds of land-use and environment. It includes both nature and landscape. The aim is to achieve a plan that retains the balance of ecological and landscape functions which existed before the project. The aim is not to build up the original situation, but to accept the new situation and conditions concerning both nature and landscape (Rundcranz & Skärbäck 2003).

There are compensation and replacement habitats (in German: Ersatz- und Ausgleichsbiotope). Replacement permits relocation of habitats in a new place. The integrity of the normal processes of habitats, such as ecological succession will then be retained. (Ketola et al. 2005).

3.4 Stuttgart and local regulations

Stuttgart is situated in the southern Germany. There are 590 720 inhabitants in the city. The area is 207 km².

Table 3. Statistical information about green areas and other green spaces of Stuttgart

STUTTGART	
Public green areas all together:	1.242 hectares 20 m²/ inhabitant
Public green areas	675 hectares
Playgrounds	93 hectares
Cemeteries	204 hectares
Traffic green, green adjacent to streets	270 hectares
Allotments	106 hectares
Forests	4967 hectares
Agricultural areas	4877 hectares
Nature protection areas	1.362 hectares
Landscape preserve areas	6.715 hectares
Nature monuments	84 pieces
FFH- Areas ca	8000 hectares
Average temperature	9°C
Situation	48° 78´N

Source: Landeshaupstadt Stuttgart 2008. Antrag zur Teilnahme am Bundeswettbewerb Unsere Stadt blüht auf 2008. Antragsformular. Garten-, Friedhofs- und Forstamt: 2 pp.

3.4.1 Landscape Plan

Aims of nature protection and landscape preservation are implemented in Landscape Plan (see Appendix 6). Preparatory Land Use Plan and Landscape Plan bring a comprehensive aspect to the urban planning process for built areas as well as for open spaces. The Landscape Plan does not require a formal approval, but the legal basis is the Nature Protection Statute of Baden-Wuerttemberg. The Landscape Plan is prepared at the same scale as the Preparatory Land Use Plan, 1:10 000. The current plan is valid until 2010 (City of Stuttgart 2007).

The Landscape Plan has three different theme maps (Landeshaupstadt Stuttgart 2004):

- Area or dimension plan for different facilities (see Appendix 7)
- Protected area plan (see Appendix 7)
- Plan for main facilities: residential areas and streets, recreation, protected habitats, agriculture (see Appendix 8)

3.4.2 Local Green Structure Plan

The Local Green Structure Plan is a supplementary plan to the Local Development Plan. According to State´s Nature Protection Statute the Local Green Structure Plan should be made at the same time with current local Development Plans (City of Stuttgart 2007).

The Local Green Structure Plan includes the aims which have been set by the Landscape Plan and it specifies the goals of nature protection, landscape conservation and preservation of green spaces for recreational use (City of Stuttgart 2007).

The obligatory task of the Local Green Structure Plan is compensation for environmental impairment and this is based on the Federal Nature Conversation Act. The other legal basis is the Nature Protection Statute of Baden-Wuerttemberg and Federal Building Code. The scale of the plan is 1:000/1:500.

3.4.3 Local Design Plan

The Local Design Plan (in German: Gestaltungsplan) shows construction details of one single project or a larger planning area. It is based upon local stipulations based on the State Building Regulations. Some development programs such as courtyard plantations and green roofs are detailed in and implemented through the Local Design Plan (City of Stuttgart 2007).

3.4.4 Green area and open space plan

The green area and open space plan has been prepared for the city centre by the city authorities. The main goal is to bind together and make connections between the larger green areas and small neighbourhood green spaces. The themes which have been identified are, for example: green areas within the green network, wine cultivation areas, places of special interest or character, important tree groups, fountains, main walking streets with different environments, avenues, street vistas and single view points. A lighting design plan has also been made for the same area (Landeshaupstadt Stuttgart 2006 b).

3.4.5 Playground Development Plan

The first Playground Development Plan in Stuttgart was prepared in 1977. The new plan from the year 2007 is very closely linked to and integrated with the city plan. Some of the goals that should be implemented are:

1. Physical activity and sensual experiences should both be considered when planning a playground. Playgrounds that are constructed in a natural style will support many kinds of play.
2. Water is a useful and attractive element in playgrounds.
3. Shared play equipments to provide social contacts
4. Elements of risks should be included in play at playgrounds.
5. Possibilities of social control should be considered; and the target is to plan open and “transparent” environment

The categories of playgrounds according to the Playground Development Plan (Landeshaupstadt Stuttgart 2007) are:

1. Playgrounds for small children
2. Play equipment playgrounds for children aged from 3 to 12 years
3. Combination playgrounds
4. Play meadows
5. Ball play areas
6. Trend play areas for youngsters such as meeting areas or action areas with skate or other facilities
7. Youngsters´ play area with skate, hockey or climbing facilities
8. City Farms for youngsters, or other areas where it is possible to spend time taking care of small farm animals and perhaps even horses.

In the beginning of 1980´s the working group for playgrounds was established (in German: Arbeitskreis Spielflächen, AKS). Inclusion of representatives from education, children's and youth organisations, housing organisations; residents and politicians ensured that these working groups were very wide reaching different aspects of playground development. (Landeshaupstadt Stuttgart 2007).

According Schuster (2007), the Mayor, the theme of the action plan "Stuttgart – City for Children" includes that new playgrounds should attract children and teenagers and the focus should be on creating green environments with little streams of water or grass areas.

3.4.6 Habitat network planning

Plants, animals and their living environments are included in habitat network planning and they are determined in conjunction with landscape. Habitat planning follows strategies of the European ecological habitat network Natura 2000. Habitats are mapped and new habitats are planned as a network within a local green structure. They can be original nature areas or areas in a man-made environment. Management and

conservation belong to the Nature Conservation Department of Stuttgart and are based on the legally binding Nature Protection Statute of Baden-Wuerttemberg. The maintenance program is also prepared to meet the aims of habitat planning. The maintenance is in co-operation with the Landscape Department Parks, Cemeteries and Forests (Landeshaupstadt Stuttgart 2006 b).

3.4.7 Green area planning process in the context of land-use planning in Stuttgart

The current Preparatory Land Use Plan was updated in 1996 and the previous Landscape Plan was drawn up at the same time. The Landscape Plan includes habitats determined in law. According the Nature Protection Statute of Baden-Wuerttemberg §24 different kinds of habitats, for example single forest habitat and dry masonry habitat can be determined. In addition the law §16 regulates landscape plans and §18 landscape plans and green structure plans (City of Stuttgart 2007).

It is possible to design areas on a smaller scale in the Urban Framework Plan than in the Preparatory Land Use Plan. The Urban Framework Plan will encompass all areas including private dwellings and their green areas, streets, public places and public green areas (City of Stuttgart 2007).

The Local Green Structure Plan implements the complete green structure. The main measures are protection, maintenance and development of landscape, ground and nature (City of Stuttgart 2007).

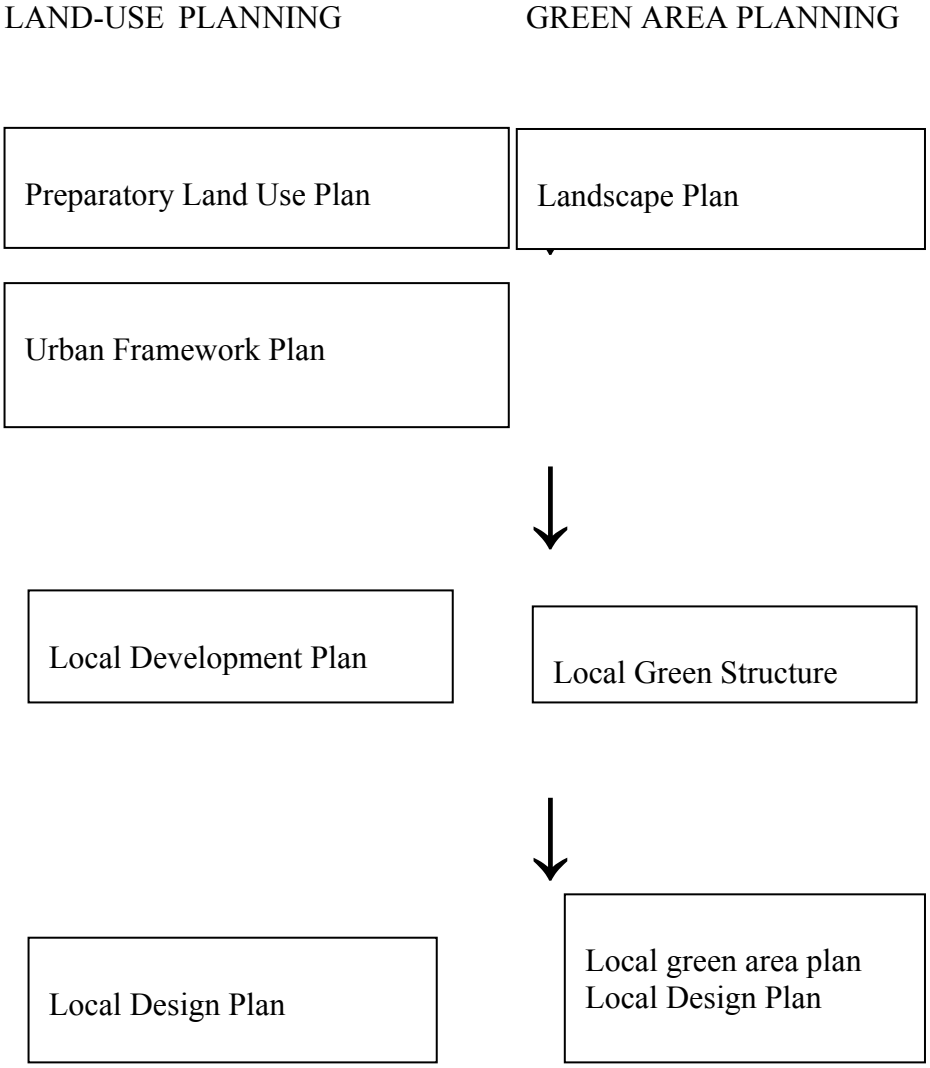


Figure 2. The levels of land-use and green area planning in Stuttgart Source: City of Stuttgart 2007. Levels of spatial planning in Stuttgart. City development planning Stuttgart. 50 pp.

3.4.8 Indicators used in planning

Number of green areas per inhabitant and percentage of total city area are used as indicators. Furthermore, percentage of intensively and extensively managed green areas has been recorded (Landeshaupstadt Stuttgart 2008)

The evaluation of playgrounds is made to prior the future budgeting. The criteria were that there should be playgrounds for small children no further than 250 meters from home and playgrounds and other outdoor places for children and youngsters no further than 400 meters from home (Landeshaupstadt Stuttgart 2007). According to the strategy, the area for a playground should be 2-4 m²/ inhabitant depending on the population density of the residential area.

The important criteria concepts were graded according to the area of the sealed soil surface, the building density of the built areas, the population density and the number of children. These grades were compared with the existing situation. A priority value was counted to each area (Landeshaupstadt Stuttgart 2007).

3.5 The methods

This research is a case study utilizing different sources of data. The methodological triangulation promotes the credibility and the validity of the results in a qualitative research. By combining different study methods new information can be formulated (Eskola & Suoranta 2000, Tuomi & Sarajärvi 2002). The empirical material of this study consists of documents and interviews. The main methods of qualitative research are interviews (Hirsijärvi et al. 2009). The aim of the comparison is to ascertain both the similarities and the discrepancies and find out which factors differ or which are similar (Mäkelä 1990).

3.5.1 Documents

The study investigates the green area planning process from the Preparatory Land Use Plan to the objective planning at the municipality level in both cities. Laws, stipulations, instructions and strategic plans guide planning processes in the studied cities. The most important strategic plans have been introduced in detail in order that a reader can see the whole content of the plans, which govern the planning processes. The statistical differences are presented in the tables to show the differences between the cities and their implications for the results. The analysis of documents was deductive, based on the theory of the documents (Tuomi & Sarajärvi 2002). However, it is not possible to examine the trends and cultural phenomena using only documents. The theme interviews are to complete this part.

3.5.2 Interviews

Authoritative representatives were interviewed to find out the prevailing trends. Nine key informants from different work units related to the green area planning process were interviewed, five from Stuttgart and four from Tampere. They were senior managers and planners in planning departments.

Outlines of the interview themes were defined in advance to the interviewees. From the basis of the themes, a free conversation was opened. A few itemized questions were necessary during the conversation. This concept is very typical in theme interviews (Hirsijärvi & Hurme 1993, Hirsijärvi et al. 2009). Specific codes were used in the analysis (Table 4, see Appendix 10).

Table 4. The codes used in the interview analysis.

Stuttgart Management	Stuttgart Management	Stuttgart Landscape planning	Stuttgart Object planning	Stuttgart Object Planning
ST	**ST1**	**SL**	**S1**	**S2**
Tampere Management	Tampere Landscape planning	Tampere Landscape and Object planning	Tampere Landscape and Object planning	
TS	**TL**	**T1**	**T2**	

The interviews were carried out in German and in English in the offices of informants in Stuttgart in May 2008. The interviews in Tampere were carried out in Finnish in June and in August 2008. They were recorded on tape for use only in this study. Each interview lasted about an hour. In total the interview data creates about 10 hours.

Inductive analysis is the most common in a qualitative research, because the aim is to find unexpected factors, not to test previous theories (Hirsijärvi et al. 2009). Grounded Theory was used in analysing the interviews. According to Glaser and Strauss (1967), the use of Grounded Theory is very suitable for cases where background theory is not very developed or if new aspects are to be found out.

At the first stage the interview data was divided into the themes that arose from the interviews. According to Tuomi and Sarajärvi (2002) the classification unit can be the character, the feature or the idea of the phenomenon. This part of classification is called open coding in Grounded Theory (see Appendix 10).

It was expected that the original themes of the theme interviews would appear in the analysis. In addition to these themes, some new aspects also emerged. When the data was examined after the first coding, it was observed that some new themes appeared also in other categories or they had references to other categories. From that basis the work proceeded and new categories were formed. This part was called the axial coding or the selective coding (see Appendix 11). The inductive process progressed to the deductive process. After this the aim was to form the main categories following the Grounded Theory.

4 RESULTS

Part of the research was to study the green area planning processes in the both cities and define how those processes were limited to town planning. The data consisted of the legislation and the stipulations that govern the processes. Another part was to gather the experience of designers and other persons involved in the green area planning processes. The interviews provided information for understanding the comprehensive planning process.

4.1 Planning processes in Tampere and in Stuttgart

The basic laws for land-use planning were the Land Use and Building Act in Finland and the Federal Building Code in Germany. The Nature Conservation Act in Finland governed the process in Tampere and the Nature Protection Statute and the Nature Protection Statute of Baden–Wuerttemberg governed the process in Stuttgart. The Environmental Impact Assessment was part of the processes in both cities. The content of the laws were expressed in the town- and landscape plans by symbols. Symbols are presented in Appendices 1, 2, 4-9.

4.1.1 The level of Preparatory Land Use Plan

When planning processes were compared at the level of preparatory land-use planning, it was noticeable that there were more symbols expressing the content of green areas in the Preparatory Land Use Plan in Stuttgart than in Tampere.

The symbols used in Stuttgart to specify use of green areas enabled more variation. Symbols for a park, for a landscape park, for a green area with a special use and for green rebuilding areas delineated more itemized content compared to the symbols used in Tampere. A special land use in Stuttgart was a youngsters´ farm that allowed farm animals in town planning areas. It was not used in Tampere.

The green connections had two definitions in Stuttgart, such as green tunnels or green corridors according their location. The green connection was the only expression used in Tampere.

Agricultural areas were important recreation areas in both cities. Landscape and nature were important factors in addition to husbandry. Agricultural areas with special values of landscape and environment were emphasized in the Preparatory Land Use Plan in Tampere. Both fields and forests were agricultural areas and they could be used for recreational and outdoor activities in Stuttgart. Agricultural areas were mostly fields and wine cultivation areas. The agricultural area bordering urban areas had a special function for ecology and there was a symbol for it. A specified symbol for forests was used, but in Tampere they had no specified forest symbol. Furthermore, In Stuttgart there were also symbols for climate, soil, water and flora/fauna and also symbols for the areas where soil, nature or landscape should be developed.

The Landscape Plan was drawn up at the same time as the Preparatory Land Use Plan in Stuttgart. Landscape designing was based on landscape analysis. Different habitats, protected habitats, cultural landscapes such as fruit tree meadows, poor meadows and ecological succession areas were implemented in the Landscape Plan.

A landscape plan was not drawn up in Tampere, but the Preparatory Land Use Plan included preservation areas, valuable ridges, geological formations, valuable landscapes or special environmental values in terms of townscape or nature. National Urban Parks were in accordance with the Land Use and Building Act to preserve the special landscape of Finland. A special symbol existed also for Natura 2000 -areas and for nature reserve areas protected by the Nature Conservation Act.

4.1.2 The level of Local Development Plan

On the level of the Local Development Plan, the content of green areas was specified in more detail in both cities. Nevertheless, the symbols in Stuttgart enabled more detailed indication of the content of green areas than in Tampere.

General green area plans were drawn up for every project in Tampere. The strategic plans and the reports of Tampere were the basis for general green area planning. Both the Classification of Environment and Landscape Report and the Maintenance Classification of Green Areas were used in planning processes. Green structure, green network and nature protection were important targets in the planning processes in Tampere.

The Local Green Structure Plan was a supplemental plan for the Local Development Plan in Stuttgart. The compensation areas had to be implemented in green structure planning from the basis of the Nature Protection Statute. Ecological aspects were important. The green structure included landscape, nature and open ground. The objectives included in the Local Development Plan were legally binding.

4.1.3 Development programs

Development plans had been made regularly in both cities. The aim was to regulate content and quality of green areas.

There were 506 playgrounds and 22 youngsters´ farms and 24 skateparks (Landeshaupstadt Stuttgart 2007). Playground classification in Stuttgart recommended different facilities for different age groups. Playgrounds were built according to a special implementing program, which also included parks for girls. Meadow areas were often designated play areas in the local area plans. Specified objectives directed planning, such as activity, senses, water in play and acceptance of risks. Shared play equipment was known to develop social contacts. One goal was also to promote development of neighbourhood or community responsibility for a playground in vicinity by participating people in planning and construction.

Playgrounds were included in both the Environment/Landscape Report and the Development Program of Green Areas in Tampere. The goal was to develop safety and a number of neighbourhood playgrounds in the residential areas. Playgrounds were determined on the basis of their use. The age distribution in the area was also determined. There were 376 playgrounds and 4 skateparks. The content of the playgrounds was not specified any further, but nature was mentioned in terms of the playground development targets. Furthermore, a skate area program had been prepared for the future in Tampere.

The Maintenance Classification of Green Areas was used in general green area plans or in object plans in Tampere. It expressed the maintenance levels and approximate costs of construction and maintenance. The classes of the Environment and Landscape Report indicated in more detail the use of the green areas and they were used in the supplemental plans of the Local Development Plans in Tampere. Furthermore, the report contained data about 56 parks and their evaluations for land-use planning.

4.2 The interviews

The interview data was coded by using the Grounded theory (see Appendixes 8-11). The original themes of the theme interview were nature, climate, trees, content and quantity of green areas, accessibility and participation. In addition to these themes new topics occurred. They were sustainable drainage, compensation, exhibitions and attitudes concerning areas. The categories associated with the factors affecting green area planning were:

- Nature
- Climate
- Trees
- Content, quantity and quality of green areas
- Accessibility
- Participation
- Sustainable drainage
- Compensation
- Exhibitions and competitions
- Attitudes concerning green areas

4.2.1 Nature

Different opinions appeared relating to the theme of nature in Tampere. Nature was a very important factor in planning processes. The most important task was to preserve existing nature. Nature had a more valuable and meaningful position in the city than it had few years ago and the approaches also included an awareness that nature is important for physical well-being of humans (see Appendix 10, codes T1, T2).

Nature preservation was very important in planning processes in Stuttgart. Different natural habitats were mentioned by name in different contexts (see Appendix 10, codes ST, S2, S3). One remarkable difference compared to Tampere was the aim to restore nature back into the city in different ways. Nature could be implemented in the city by establishing natural playgrounds (in German: Naturnahe gestaltete Spielflächen) or other extensive maintained green areas even in the city centre. The importance of

nature for physical well-being was considered in planning processes (see Appendix 10, codes ST, S1, S2).

4.2.2 Climate

Climate and global warming were well known subjects among interviewees in both cities. Most of the opinions were presented in the context of macro climate in Tampere (see Appendix 10, TS, T1). Existing changes due to global warming were mentioned in Stuttgart (see Appendix 10, codes S1, S2). However, most of the opinions were directed at the micro-climate and how to reduce unfavourable effects in residential areas. Green roofs (see Appendix 13) were mentioned in the context of climate. There was an existing project whereby half of the cost of building a green roof would be met by the city. Green roofs could also be required by the Local Development Plan and as an obligatory inclusion they were not subsidized.

The vineyard slopes in wine cultivation areas were very important for air flows. The importance of free air streams is such that it could, in some cases, prevent building if the project were a threat to the air stream. Free air streams improved the micro- and meso- climate by reducing airborne fine particulates and decreasing air temperature.

4.2.3 Trees

Trees had an important task in both cities in townscape planning. They were also planted to improve city climate by reducing fine particles of dust and temperature in Stuttgart. There was an on-going project to plant 1000 trees which was financed by the city.

Trees planted along the streets and in residential areas were usually the size 20-30 cm diameter at one meter height in both cities (see Appendix 10, codes TS, TL, T2, SL, S1). In Stuttgart all the trees with the trunk diameter 80 cm at one meter height were protected by a law (in German: die Baumschutzsatzung der Stadt Stuttgart BScHS, see Appendix 13).

4.2.4 Content, amount and quality of green area

Recreation, social contacts, different facilities and aesthetic factors were important aims in green area planning. Physical health of users was considered in the context of green areas in both cities. Interviewees identified safety in several contexts in Tampere (see Appendix 10, codes TS, T1,T2). The strategy for the green area development in Stuttgart was named Worth Living (in German: Lebenswerte) (see Appendix 10, code ST) and in addition a couple of aesthetic factors were mentioned (see Appendix 10, code ST).

The green area planning processes in both cities were very target-oriented. Authorities and designers acted on the basis of the stipulations. Knowledge about maintenance costs and needs of users were an integral part of the process. The quality of green areas was also evaluated on the aspects of facilities, diversity and accessibility (see Appendix 10, codes TL, T1, T2, ST, SL, ST1, S2).

The budget for the cities was the basis for implementing work and also governing the planning work (see Appendix 10, codes S1, S2, T1, T2). The budget was approved for a year in Tampere, but the economic plan included the investments for a five year period (see Appendix 10, code TS). In Stuttgart the budget money was set for two years on the basis of an economic plan (see Appendix 10, code ST).

The biggest difference between the cities was observed in discussion about the amount of green areas in the cities. The anomaly in Tampere was that rest areas were designated green spaces in land-use plans. They were registered as green areas in the statistics of the city, but they did not have a value for recreation (see Appendix 10, codes T2, TL). Deficiency of land was a real problem in Stuttgart. Thereon the green structure included green areas marked with a specified meaning. (Appendix 10, codes SL, S1).

Whereas in Tampere some small neighbourhood parks (´stamp parks´) were considered as misleading statistical information because of they missing content (see Appendix 10, codes T1, T2), they were important in Stuttgart being greeneries in a built environment (see Appendix 10, code SL).

4.2.5 Accessibility

The green structure is the basis for accessibility of green areas in the cities. The park and green area classes in the Environment and Landscape Report in Tampere were to ensure the content of green areas and in that way also to ensure accessibility. The difficulty was that all the green areas defined as parks in the Preparatory Land Use Plan or in the Local Development Plan were not able to support accessibility (see Appendix 10, code T1). The green circle, or Green U in Stuttgart was the name of the green structure that was developed. Deficiency of green areas appeared again in the context of green structure. (Appendix 10, code SL). The distances from home in residential areas were defined for playgrounds for use by different age groups (see Appendix 10, code S1).

4.2.6 Participation

Participation of citizens was included in the planning processes in both cities. The laws of the countries, the Land Use and Building Act and the Federal Building Code, stipulated this. The attitudes of the authorities were very positive concerning the participation of stakeholders. New methods were developed in Tampere to raise stakeholder awareness. It was very common in both cities to display a plan in a park or present it to an audience (see Appendix 10, codes S1, S2, TL, T1, T2). It was easier in Stuttgart to hold stakeholder meetings, because most of the planning applied to areas where people already lived. Local politicians and neighbourhood associations were involved in participatory planning. The common problem of both cities was how to communicate with and get young people interested in participation (see Appendix 10, codes T1, S2). In Stuttgart the whole participation process was seen as a development process where both participants and designers could develop methods for interaction of the process (see Appendix 10, code S2).

4.2.7 Urban Drainage- Sustainable Drainage

Built-up areas need to be drained to remove surface and runoff waters. This is usually done by using underground pipe systems. The current issue of discussion in both cities was surface drainage methods in land-use planning processes.

A sustainable drainage system was discussed in Tampere and some new projects were in progress to implement the system. Factors associated with drainage systems increased the costs and affected the safety of users (see Appendix 10, code TS).

Sustainable drainage was a well known subject in Stuttgart. It was included in every planning process. It could also be implemented through materials that were used, for example, permeability of surface materials (in German: Wassergebundene Decke, see Appendix 10, code S1). One rule was that runoff water from the streets should be absorbed in private gardens (see Appendix 10, code ST1).

4.2.8 Compensation

The aim of the compensation system is to counterbalance the impacts of built infrastructure. The issue arose in many contexts of planning processes in Stuttgart. The problem related to compensation seemed to be deficiency of land. In different projects, for example in Neckar project, there was money for construction, but no land for it. The problem was revealed to be on a large scale (see Appendix 10, codes SL, S1).

4.2.9 Exhibitions and competitions

Certain exhibitions were mentioned concerning parks and green spaces in Stuttgart (see Appendix 10, codes ST, ST1). The state and county wide exhibitions had influenced the development of parks over the decades. The exhibitions were called in German Bundesgartenschau and Landesgartenschau. Stuttgart took part in 2008 in the

competition Entente Florale. This competition included all the projects concerning landscape and green areas in Stuttgart (Entente Florale 2008).

4.2.10 Attitudes concerning green areas

Attitudes of citizens associated with the planning process arose also from the analyses of the interviews. It was stated by interviewees that citizens in Tampere were not very familiar with landscape parks (see Appendix 10, code TS). Playgrounds, city centre parks and forests were well known, but the character of neighbourhood parks could be unknown. Habitats were also unknown (see Appendix 10, codes T1, T2). The new directive of the local building code ruled that citizens of some new areas must build a fence to mark the boundary between the public place and the private place to prevent them to adopt natural green area as a part of their plot (see Appendix 10, code T2).

Deficiency of green spaces arose also in connection with residential areas in Stuttgart. Projects in these areas were prioritised according to the deficiency of green (see Appendix 10, codes SL, S2). Prices of apartments were higher where there were green areas (see Appendix 10, code SL). Any other specific attitudes of citizens were not reported in Stuttgart, but the NIMBY –phenomenon was addressed in both cities in the context of new plans or future changes. The letters mean Not In My Back Yard (see Appendix 10, code S2, T2).

5 DISCUSSION

The aim of the study was to make transparent the planning processes in two different countries and in that way find out the essential and leading principles that influence the planning and content of green areas. The geographical position and population density of the comparison cities were partly the reason for the differences. Some differences were due also to the laws. The research examined the situation and conventions currently in force in the cities and generalised these for each of the countries. The results were investigated according the available theories in order to understand the meaning and to make the results more usable.

5.1 Strategic planning and a green structure

The symbols of the Preparatory Land Use Plan were legally binding in both cities. The range of symbols applicable to green area planning were more versatile in Stuttgart, enabling more strategic planning by better expressing the meaning and use of green spaces in a green structure. That is why landscape planning and preparatory land-use planning should be an interactive process. Diversity of green areas and ecological network is necessary to identify in preparatory land-use planning.

According to Sandström (2002) the most common arguments for green areas in municipal planning processes are recreation and biodiversity conservation. Hence, some conflicts can be noted due to the changes in green structure in the context of urban expansion. He draw also a conclusion that green spaces of cities should be taken in to account as an entity of green infrastructure, afforded the same status as buildings or highways. Investigation had shown that legislation is an important driver for green space planning (Sandström et al. 2004).

According Ståhle (2005) green structure is more connected to regional and municipal development than to local plot development. A sociotop concept was developed in Sweden to answer the questions “for whom”, “for what” and “where” green spaces are planned. Environmental psychology is an important theory in a sociotop concept. Previous studies have proved that both parks and nature support urban life. The green structure should be reshaped and created at the same time with other infrastructural planning in order to gain quality, even if the quantity is reduced (Ståhle 2005).

A landscape plan was not prepared in Tampere as a supplemental plan for preparatory land-use planning. General green area plans were drawn up for Local Development Plans, but the directives of general green area plans were not usually legalized in Local Development Plans. The aims of a regional plan or a general green area plan were included in the Federal Building Code. However, the classifications used in Tampere were a very strategic part of the processes influencing the content of green areas.

The Landscape Plan and Green Structure Plans were drawn up as part of the land-use planning process in Stuttgart according the Nature Protection Statute. The aims of nature conservation areas and other specified measures were expressed in the plans. According to the law 10 percent (%) of the area has to be classified as biotype/habitat areas and the procedures concerning nature and compensation areas have to be determined. A Green Structure Plan included compensation areas and the directives were also included in Local Development Plans. Furthermore, habitat planning was strongly linked to green structure planning and the compensation system in Stuttgart. Different habitats, conservation areas and succession areas were determined in the plans. The legal aims of the Landscape Plan and the Green Structure Plan were implemented in the Preparatory Land Use Plan, the Local Development Plan and the Federal Building Code.

Sandström et al (2004) have registered that with specialist knowledge and a correct approach it is possible to make strategic decisions about habitat planning for the lowest cost. However, the survey showed that habitat network connectivity or habitat renewal was not often mentioned by authorities involved in planning processes (Sandström et al. 2004).

Habitat network planning is an essential part of green structure planning. Habitats and natural environments demand enough space for ecological processes and successions.

5.2 Development plans

Strategic plans and programs are needed to reach the targets over a longer time period. The strategic plans of the studied cities have been drawn up in wide co-operation with authorities of different city departments.

The development of playgrounds was emphasized in both cities. Tampere developed the content and servicenet by concentrating on larger areas with good connections and facilities instead of small playgrounds. The strategy in Stuttgart included the development of playgrounds, schoolyards and kindergartens in the city according an action plan called Stuttgart- City for Children 2007. The development of

playgrounds in Stuttgart took a strong stance on nature elements (in German: Naturnahe gestaltete Spielflächen). Nature was to exist in day to day play. Water, meadows and other nature elements were implemented in parks and kindergartens. Youngsters´ farms offered a possibility, in first case for teenagers, but also for other inhabitants to have contact with farm animals in a residential neighbourhood.

Numerous studies supported the idea that nature in playgrounds promotes children's growth at many levels. According Thompson Ward (2008) there is an important link between play and natural environments; through play children learn to develop mind, body and spirit and establish a relationship with the social and physical world. Many of the researches depicting the importance of nature have been made in connection with hospital environments and healing gardens (Lewis 1996, Moore 1999, Cooper Marcus 1999). This result is also linked to the way in which people experience nature later in their life- time or how positive memories from playing in nature relate to their therapeutic and recreational value in adulthood (Thompson Ward 2008). Furthermore, empirical researches identify that people who have had regular visits to natural outdoor environments as children are more often likely to visit them again because of their attitude to the natural environments due to childhood experience (Thomson Ward 2008).

The action plan of Stuttgart also incorporated risks as important factors in play areas. According to Frost et al. (2001) healthy development and growth of children needs risk-taking opportunities and possibilities for physical activity. Playgrounds have become unchallenging places in EU area in the last 20 years (Frost et al. 2001). This is about the period that EU -norms have been developed for play areas and play equipment (European Committee for Standardization 2009). Thompson Ward (2008) points out that areas should offer higher play value, support children´s free explorations, physical activity and interaction with other children and adults. The EU -norms were valid in both cities and the same layouts and contents should have been possible to implement.

5.3 Strategies and trends

Nature was a very important theme in both cities in the context of town planning. In Stuttgart the trend was to return nature back to the city. Ecological thinking and habitat network planning governed planning processes. The knowledge about different habitats among authorities was recognized. The problem of the processes in Stuttgart was deficiency of land.

Tampere had comprehensive reports including preservation of existing nature. Furthermore, the ecological green area structure was known among authorities. Many natural areas were subject to a law and the aims had been included in reports of Tampere. According Laihosalo (2008) only 10-15% of green areas are parks or other developed green areas and the rest is forests and natural green areas. Tampere had also faced the problem of land deficiency in terms of green spaces. Former suburb areas and city centre areas had relinquished green areas for building, even though the problem in the studied cities was not equal.

The implication of nature in terms of public health was familiar among interviewees in both cities. The importance of physical health was a target in planning. The exact terms related human health and well-being were not mentioned, but the green spaces were to promote public health. Kaplan & Kaplan (1989) have confirmed the importance of the surrounding environment for human health and well-being in their empirical studies. The human-nature relationship is multilateral. Firstly, it has been found out that restorativeness is needed in human life to recover from stress, to prevent mental fatigue and other demands that have been set by modern society. Four characterisation of people-environment interaction have been reported in terms of restorativeness. They are the need for fascination, being away, compatibility and extent. These experiences come not only from wilderness; but also preferred surroundings; nature and aesthetics are essential factors in all these experiences. The studies have shown that surrounding nature and gardens are very important sources of restorativeness and familiarity has an importance for people (Kaplan & Kaplan 1989).

The restorative ability of green areas has been recently studied by environmental psychologists. The goal has also been to develop standards to measure the restorativeness of the environment. Environmental psychology postulates that the regulation of spirits and the self-image experience are influenced by the favourite places and nature (Aura et al.1997, Korpela 2007).

Experience of nature should be reached in the city environment by different age groups. This is a challenge for urban designers. The solution is not to leave just natural areas in a city structure which has happened in Tampere. Rural areas do not automatically fulfil the requirements of nature experience and aesthetics.

According to Kaplan and Kaplan (1989) coherence cannot be experienced in every place. Natural areas should be part of a landscape or a townscape. Thus, it has been reported that even a view of natural areas and gazing out through windows contributes to improved health and well being. One can be in a natural setting or looking at it (Kaplan & Kaplan 1989, Lewis 1996).

5.4 Multiple use and quality of green areas

Quality and content of green areas is not dependent on the quantity as the discussion in former chapters of the present study has proved. Statistical indicators about quantity were available, such as the number of green areas in town plans or area m²/inhabitant. In addition the comparison cities had developed evaluation systems of their own. The evaluation system in Stuttgart prioritized investments on playgrounds. The evaluation system in Tampere analysed the content of 56 parks, even though it was stated that evaluation is always depended on prevailing general values (Tampereen kaupunki 2008 a). Other indicators were not reported, but accessibility was considered in green area planning processes.

People usually use neighbourhood parks for walking, cycling, jogging and dog walking. One typical activity is to go out to playgrounds with children. Rappe (2005) has stated that accessibility of the neighbourhood is an essential factor in the context of mobility of the elderly on self-rated health. The term accessibility can refer to the whole green area structure or the accessibility of a single area. Inaccessible green areas were

only discussed in the interviews held in Tampere. Existing vegetation or other adverse circumstances prevented use of these areas. According to Neuvonen et al. (2006) short distances to green areas suitable for recreational use have increased the number of visits to these areas in Helsinki. Accessibility of green areas is achieved in cities by planning a good green network and by determining the use and maintenance of green areas.

The distances to playgrounds were defined in Stuttgart. That is one way to ensure accessibility for a certain group of users. The value of a green area is considered to be high when many users can get there within a short time (Gälzer 2001). The distances at which different green areas are located are recommended by Gälzer (2001): Playgrounds for small children 50-150 m (0 min), playgrounds 250-500m (5 min.), parks with different activities for people of different ages 15 minutes, parks and cemeteries 15-30 minutes and recreation areas 60 minutes.

The problem raised in Tampere in terms of quality was that areas, having no recreational use, were marked as green areas in the Preparatory Land Use Plans or the Local Development Plans. One problem caused by this, is that all green areas demand commitments from and maintenance costs for those who are responsible for green area management. Because the planning process is conducted from top to bottom, areas not suitable for building are marked as green areas without the function of recreation or other specified content.

The problem of unknown and underrated green areas in Tampere applies to the zones between private and public areas. Public green areas are sometimes used as an extension of private plots. Some regulations are in force to prevent this extension. According the interviewees natural areas or habitats were not known among inhabitants of Tampere, but the aim was to promote knowledge about different types of green areas in a green structure. This requires long-term green structure planning and interaction with citizens.

Kyttä and Kahila (2006) have found out that the quality factors which had been implemented and which had been defined by inhabitants had promoted their well-being. The closer was the presence of quality factors to the everyday surroundings of the

inhabitants, the better the health that was reported. The reported quality factors in the vicinity often referred to green areas and nature (Rappe 2005, Kyttä & Kahila 2006).

When ´stamp parks´ of Stuttgart and ´pocket parks´ of Tampere were mentioned in the interviews, it is obvious that the meaning of them is different in a city structure and in a green structure. They had no meaning in Tampere, because they usually were small parcels of barren land not suitable for building areas. In Stuttgart the value of pocket parks was important addressing the threat that old green areas used for social contact in a neighbourhood, may become built-up areas in the future.

It has been reported that pocket parks and surrounding nature are very important for inhabitants, where actual use or activity was not as essential as the experience – this involvement was reported from empirical studies by Kaplan and Kaplan (1989). The perception of extent is more important than the size of a green space (Kaplan & Kaplan 1989).

Ulrich (1983) has examined places where people want to spend their time. It is possible define special characteristics of these places and to consider them as content of the areas. Korpela and Ylén (2007) have contributed research about favourite places. Firstly, favourite places were proved to be important for promoting human health and well-being. In their study the favourite places studies showed that a favourite place can be situated in an urban area or it can be a quiet natural setting outside a city.

Aesthetics and the relevance of it to the city image and to citizens was noted in the interviews from Stuttgart. According to Werner Wohl´s research (1998) the strongest motive to visit green areas is aesthetics. The next motive is recreation and after that peacefulness. The strong heritage of the park culture and its immortal role in the cities could be recognized in the interviews as well. Natural areas and parks were not competing with each other in a green structure. According to Chiesura (2003) urban nature included both parks and natural areas and provided benefits for both municipalities and citizens.

Safety did not have a high priority in the interviews. It was raised only in Tampere in the context of the new topic of sustainable drainage and runoff waters. The risk was

raised during a discussion by inhabitants of the new areas where the sustainable drainage had been implemented in green areas. Safety is an essential factor in green area planning processes. The issue of safety was not raised in the themed interviews either because it is so self-evident or for some other reasons.

5.5 Climate and global warming

The global warming met with equally serious attitudes of the authorities in both cities. The future consequences are not known and strategies directly associated with the global warming could not be registered.

The climate in Tampere did not cause the same problems as in Stuttgart, where micro-climate and fine airborne particles were often mentioned in connection with green area planning processes. Furthermore, there were local projects and stipulations which were in place to improve the climate in Stuttgart.

Global warming harmed the success of some tree species in Stuttgart, and new species have to be found as a substitute for the traditional ones. Trees were part of the townscape and their function was also to influence the climate in the cities. The strategy of Stuttgart- Lebenswerte Stadt- was implemented also through projects, such as tree plantings and green roofs, where economic support was also given by the city.

Global warming has caused that more frequent, regular heavy rains have become normal. Resulting from this sustainable drainage has been in discussion for some years now. The function of sustainable drainage is also to prevent flooding, to preserve the groundwater level and to improve water quality. There have been remedial actions concerning urban drainage since 1980´s in Germany. The Nature Protection Statute from the year 2002 considers the decline of the groundwater level as an issue which must be remedied. According to the local water law, urban drainage water needs to be collected and processed, and so nowadays sustainable drainage is used more often (Tornivaara-Ruikka 2006). In Finland, urban drainage waters are also regulated in land-use planning processes.

Green roofs are known historically from different cultures. They have been built in cold Scandinavia as well as in warm Africa (Gälzer 2001). Green roofs ameliorate the climate in many ways. They shield buildings and roofs from ultraviolet radiation and rapid temperature changes; they store rain waters and evaporate it as well as promote city ecology (Gälzer 2001). A number of studies have been published during the last two decades in German on the reduction of rainwater runoff in the context of different green roofs. Green roofs are very useful for reducing urban rainfall runoff, but they should be combined with other reduction measures, such as storage in green areas or in other infrastructure and the increase of green areas (Mentens et al. 2006). Micro-climate and city ecology were the essential aspects considered in the planning processes in Stuttgart.

5.6 Participation

Public participation was carried out according to the requirements of the laws in both cities. It usually meant public displays of a draft plan and in addition to this plans could be introduced at public occasions. The differences between the cities could be identified due to the difference of planning areas. Many projects were carried out in existing areas in Stuttgart and stakeholders and local politicians participated more easily than in Tampere where many new projects took place in new residential areas.

Public opinion was considered important for ongoing projects in Tampere. Citizens and users of certain areas were respected as experts on everyday life and they provided important information from the area (Anttonen et al. 2008). Tampere had also developed other concepts of participation to get more people involved. For example, SoftGIS had already been used in Tampere (Tampereen kaupunki 2008 c). It is geographical information used in both planning and studying the environment (SoftGis 2008). By using this internet based system it is possible to get mapped information concerning, for example, experiences of safety and quality of environment. Because the system can be worked up very visually, it is suitable to use when gathering local knowledge from children and young people.

Direct contacts, like workshops between citizens and authorities were common in Stuttgart. Participation was seen interactive and as a learning process for authorities and participants; also for children and young people. The planning work could be ordered from private companies including the whole process from participatory planning to participatory construction. This helps the project management and often led participation being carried on to implementation for many projects. However this could not have happened without direct contacts with people on the ground.

Picture 1. Participation in construction of a playground in Weilimdorf, Stuttgart.

5.7 Compensation

The compensation method is not known in Finnish legislation. German legislation includes determine compensation and EU- nature directive article 6.4. assesses a plenary compensation for mitigation of the Natura 200 network (Ketola et al. 2009). The compensation is used in different ways in European countries, but the system is the most developed in Germany (Ketola et al. 2005). In Stuttgart it was a compulsory measure which impacts from the Preparatory Land Use planning staged through to construction and maintenance.

Rundcranz and Skärbäck (2003) had clarified that he principle of compensation is that whoever causes the need for compensation will be in charge of replacement. Firstly, it is necessary to explore the ways that restoration compensation can be achieved in the original place. Secondly, the possibilities for replacement compensation will be examined. The process can lead to a decision that nature protection is more important and that the building project has to be abandoned (Rundcranz & Skärbäck 2003).

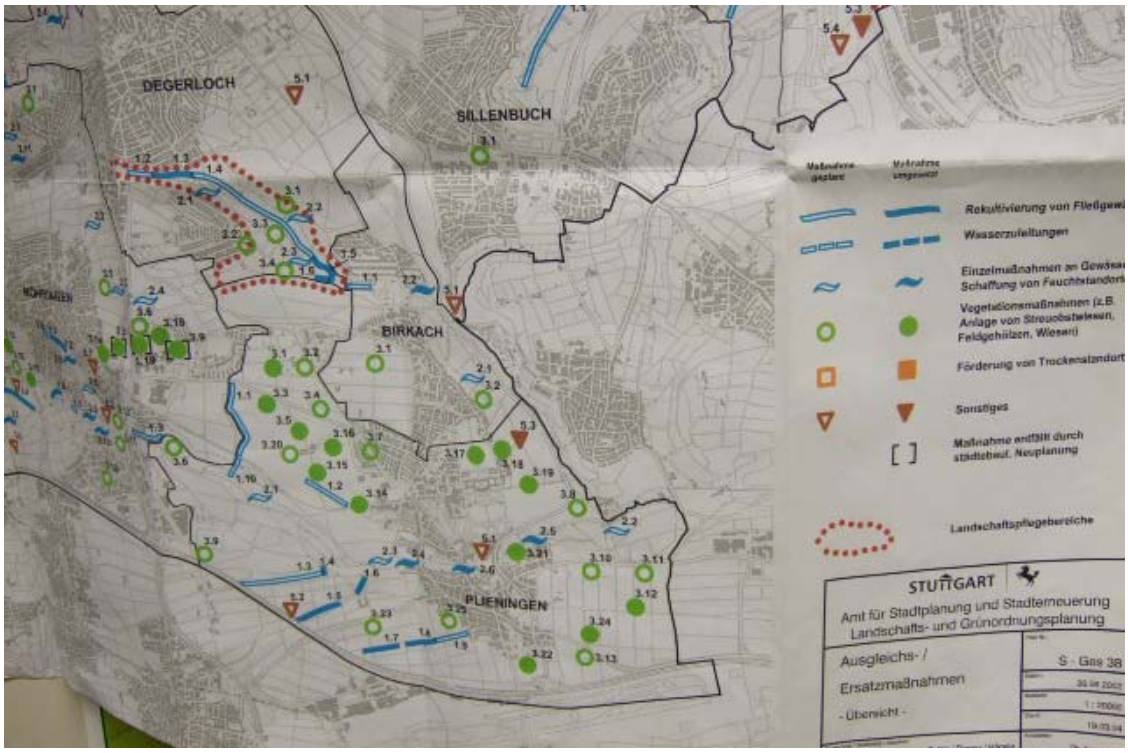
Further in their report they explain that the method of the compensation evaluation starts with an assessment of the building area by a scale of points. These points can differ from one municipal authority to another, but the principle is the same in the whole country. These points can then be turned into Euros through a special calculation.

> *"The question is not to calculate costs and then pay for the loss of values and consequently environmental compensation is in this context is not aiming to be an instrument for cost-benefit analysis"* (Rundcranz & Skärbäck 2003).

These values have to be implemented into a new plan so that the new and old values are equal at the end of the process (Rundcranz & Skärbäck 2003, Hessische Ministerium 1994).

The Local Green Structure Plan had to fulfil the obligation for compensation of environmental impairment in Stuttgart. That means that there should be areas for the replacement compensation in the plan. The decisions made during green structure

planning have to be converted into the Local Development Plan for legalization, see Appendix 12 (City of Stuttgart 2007). Nowadays the cycle of compensation, habitat and succession areas in connection with green area planning is a comprehensive process.



Picture 2. The land-use map of compensation areas. 2007.

6 CONCLUSION

This comparison study provided a view of green area planning in the context of town planning in two cities in two countries. The results embodied landscape, ecology and green areas in the context of public health as very important in the planning processes in the cities.

The most notable difference was found in the legislation of the countries. The legislation in Stuttgart and the specific symbols in the town plans made the processes continual. The definition concerning certain green areas remained from the Preparatory

Land Use planning to object planning. The concept of Stuttgart was valid in Germany, but the concept of Tampere was not valid in Finland, because of a lack of statutes for landscape and green area planning in the legislation. Whether or not a landscape and a green area planning process were holistic in Finland was dependent on the city or municipality. According this research the legislation should be developed in Finland in order to govern the whole country. Nature Protection Statute in Germany made landscape planning and green structure planning obligatory and in addition, due to this interaction between green area planning and land-use planning, some of the aims were legalized in the town plans. In addition the compensation method linked the green structure planning to the law.

Different green areas, ecology and nature preservation issues should be displayed in visual maps and in landscape plans in order to include them in a strategic green structure and green area planning. The law based definitions and symbols would direct planning processes strategically. Symbols and their definitions would also be more understandable for inhabitants. Information about landscape, habitats and the classification of green areas would also increase appreciation and knowledge among authorities and inhabitants of all types of areas.

The trends and strategies that occurred were very close to the aims of the laws in both cities. Hence, specified symbols described areas such as fruit meadows (in German: Obstwiesen), landscape parks and different types of green corridors in Stuttgart. This embodied that the symbols should also be developed to match the local conditions. Reports and regulations at a local level have an important meaning. They have been drawn up co-operatively from many groups, the discussion being a tool in an interactive process. The problem is that they have been tailored for a local area and they can not be used generally.

In swedish research Sandström et al. (2005) reported that legislation was an important driver for green space planning. Furthermore, recreation values and public health were considered in planning processes, but biodiversity maintenance was not a high priority (Sandström et al 2005). This indicates that conventional thinking about urban planning does not include the necessary knowledge about the importance of ecology for sustainable urban development.

Nature protection planning and habitat planning were separate from landscape planning in Finland, because they were considered nature rather than parts of the landscape in the regulations. Some laws assign statutes and other investigations relating to the nature elements, but not the whole landscape. Sustainable urban drainage can promote a new way of thinking by combining natural settings as a part of a green network and ecological landscape. Thus in the long-term, different types of habitats have their correct location and status within a city landscape. They could earn their status as a utility for inhabitants (Yli-Pelkonen 2008) as the other green areas already do. It is, however, important to ensure that these ecological and natural areas are of sufficient size that succession and other ecological processes can occur.

The conventional thinking in Finland among inhabitants did not always value natural settings in the neighbourhood. Forests were an exception, because of their characteristics in the Finnish landscape. This study confirmed previous studies that nature should exist and remain in the city structure, because green elements have special effects on climate, global warming, drainage waters and human life.

According to the statistics of the cities there were 100 m² of green area for each inhabitant in Tampere and 22 m² for each inhabitant in Stuttgart. It is important to know about the fundamental differences, but they are not a reason why the processes should not be developed in Finland. The essential attitude may be that Finland is not concerned with the same problems as Germany in the context of nature. The empirical data certified that the deficiency of land was an existing problem in Stuttgart. This problem was not discussed in Tampere, but conversely there were not enough green areas. The threat of the loss of nature resulted from the increasing city structure and population density in Stuttgart. Using the approach of restoring nature back into the city, many people were able to meet, for example, farm animals in their home vicinity and children were able to experience nature in playgrounds in their day to day life.

To reach the balance of all existing needs between nature patterns, people and city management, it is necessary to consider green area planning as a process of wide co-operation. The evaluation concepts were tools in assessing the green areas in the studied cities, but they did not include any aspects of environmental psychology. Indicators for

human health and well- being, such as recovery from stress or rehabilitation, social contacts or stimulation of human development should be improved. Participation of inhabitants will also have an effect on processes by social interaction and provision of cultural-social knowledge.

Exhibitions and competitions had a remarkable role in the development of parks in Stuttgart. The exhibition system in Germany has a long tradition and it has produced investments in parks and green areas all over Germany. The exhibition organisation finances a part of the construction and the municipality finances the rest. This kind of system is not used in Finland, and it could be developed in Finland and in EU- area. The EU- wide projects relating to this study were the EU- norms and Natura 2000 network. In addition a strategic Environment Impact Assessment (EIA), was under preparation for the European Union. Green areas, because of their multiple importances in a city structure, would need rapid development by the European Union. The advantage would be the sharing of international knowledge and practice among all EU countries.

This study was carried out in order to develop green area knowledge in Finland by utilizing international knowledge. The nationwide maintenance classification of green areas has been developed in Finland by the Finnish Association of Landscape Industries. It proved that big nationwide outputs can be carried out. Corresponding national regulations were not mentioned in Stuttgart. The nationwide classification of use relating to green area planning at town planning level could be a beneficial tool in Finland in addition to the law.

According to the future development program of the Association of Finnish Landscape Industries (2008):

> "*The functions of green areas in society are cultural, social, ecological, technical and economical. The green area industry is developed in Finland and the aims are to promote e.g. better accessibility and quality of green areas, to provide new laws and stipulations concerning management of green areas and to develop new ways for the participatory planning*".

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SOURCES

Appendix 1: Preparatory Land-use Plan in Finland

Some symbols (modified) and meanings concerning natural environment and landscape (□ symbol not drawn):

□ Valuable landscape is used for special heritage values and these values can be defined in the report or in the symbol.

□ Area with specific environmental values that can be connected to the townscape and nature values.

□ Valuable ridge area or other geological formation.

□ Natura - 2000 accepted area or proposed Natura 2000 - area. Natura -2000 is the net of natural areas in EU. The aim is to guarantee biodiversity and species of nature areas that is defined in the nature directive. The decision of acceptance is made by the EU commission.

□ National Urban Park
The park is to be established to conserve special cultural and recreational values. The acceptance is made by Environmental Ministry.

The specific symbols of land-use relating to landscape, green areas and recreation areas:

V Recreation area can mean parks, sport- and different kinds of recreation areas. They are usually large areas and specific use is not necessary to determine. The forest law is valid on these areas (green).

VU Sport and recreation areas can be marked when the use is determined (green)

VR Camping and hiking areas are usually situated outside the populated area and environment is usually natural (green)

RP	Allotment gardens (orange)
EH	Graveyards (cyan)
EV	Green areas that protect from different adverse factors such as noise, industry or traffic. These areas cannot be used as recreation areas. It is possible to give special stipulations of planting or preserving trees (cyan).
S	Protected area is marked when the protection is made on a legal basis. Nature Protection Law applies natural areas (blue).
SL	Nature reserve areas are the ones that are or will be protected by Nature Conservation Act (blue).
/s	This mark is used when existing environment will be preserved. These types of areas can be also green areas and parks.
M	Agricultural or forestry areas. They can be used for recreation and outdoor activities when this will not damage the original land-use (yellow).
MA	Valuable fields in landscape (yellow)
MU	Agricultural and forestry areas where outdoor activities such as hiking is permitted in specific areas (yellow)
MY	Agricultural and forestry areas with special environmental values (yellow)
M	Areas for agriculture forestry can also be used for recreation when this will not damage the original land- use (green)
□	Routes and connections are also marked Source: modified from Ympäristöministeriö,Yleiskaavamerkinnät ja -määräykset (2003)

Appendix 2: Local Development Plan in Finland

Some symbols of the land-use concerning landscape, green areas and recreation areas (□ symbol not drawn):

V — Recreation areas where it is unnecessary to determine specific facilities (green)

VP — Parks that has been built or will be built as park area (green)

VL — Recreation areas that are situated in populated areas or nearby. They will be preserved as natural areas and will not be built as parks. Such areas can also be specified, for example VL-1: meadow, recreational woodland (green)

VL — Playgrounds and small football or other play areas (green)

VU — Areas for sport and recreation (green)

VR — Camping, hiking or other outdoor activity areas (green)

VV — Pond or lakeshores for swimming activities (green)

EV — Green areas that protect from different adverse factors such as noise, industry or traffic (cyan)

S — Protected Areas (blue)

SL — SL Natural reserve areas are the ones that are or will be protected by Nature Conservation Act (LSL) (blue)

/s — This mark is used when existing environment will be preserved. These types of areas can be also green areas and parks.

M	Agricultural or forestry areas. It can be used for recreation and outdoor activities when this will not damage the original land- use (yellow)
MA	Fields valuable in landscape (yellow)
MU	Agricultural and forestry areas where outdoor activities such as hiking is guided to specific areas (yellow)
MY	Agricultural and forestry areas with special environmental values (yellow)
kp	Urban National Park.

There are special marks for different kinds of routes. Part of the areas can be marked as planted with trees. Also a tree line can be entered in Local Development Plan.

Source: modified from Ympäristöministeriö, Asemakaavamerkinnät ja –määräykset (2003)

Appendix 3: Maintenance classification in Green Areas in Finland

MAINTENANCE CLASS			CHARACTERISTIC
A PARKS AND OTHER DEVELOPED GREEN AREAS	A1	Representative green areas	Courtyards of important public buildings, city parks, gardens and squares or parts of these
	A2	Recreational and functional green areas	City parks and squares, playgrounds, main green traffic areas, courtyards and areas for recreation and functions
	A3	Functional green areas and exclusion areas	Generally extensive parks, exclusion areas and natural gardens, recreation areas and green traffic areas outside city centers
B OPEN GREEN AREAS	B1	Landscape field	Cultivated areas for landscape plants
	B2	Field for outdoor activities	Open and partly open fields, which can be used for outdoor activities
	B3	Landscape meadow and pasture	Landscape meadows are open or partly open meadows with routes for walking. Pastures are fields maintained by grazing.
	B4	Open area and open view	Areas which are kept open for views or e.g. for technical networks
	B5	Meadows of important value	Meadows important for cultural heritage, landscape values and natural diversity
C WOODLANDS	C1	Neighbourhood woodland	Heavy use woodlands near housing areas
	C2	Recreational woodland	Recreational woodlands in densely populated areas or just outside them
	C3	Protective woodland	Woodland between housing and other developed areas and activities which might cause disturbance
	C4	Productive forest	Areas maintained by forestry principles
	C5	Forest with important value	An important location because of landscape cultural heritage, natural diversity or other distinctive values
E SPECIAL AREA			Harbour or canal areas, boatyards for winter storage, sportfields, beaches, dog parks, dog paddle areas etc.
S PROTECTED AREA			Protected area (by law or by the landowner)

R AN AREA UNDERGOING LAND USE CHANGE		Area addressed for development in master or town plan
0 AN AREA OUTSIDE MAINTENANCE		An area with no maintenance

Source: Viherympäristöliitto.2007. Viheralueiden hoitoluokitus. Helsinki: Viherympäristöliitto ry, julkaisu 36.2 pp , modified

Appendix 4: Preparatory Land Use Plan in Germany

Some symbols (modified) and their meanings concerning natural environment and landscape (□ symbol not drawn):

There are specific symbols for the areas that already exist and for the areas that will be introduced in the plan.

	Park or landscape park (green)
□	Green space with special use (green)
□	Sport area (green)
□	Swimming pool (green)
□	Graveyard (green)
SG	Permanent allotment gardens (green)
□	Small fauna (green)
J	Youngsters´ farm, an area for active playing (green)
□	Camping place (green)
	Green connection (green)
	Green connection, - corridor,- passage (green)
□	Green rebuilding area (green)
□	Garden house area (green)
L	Areas for agriculture and wine cultivation (green)

□ Areas for agriculture with additional purposes such as recreation, climate, water, soil or flora/fauna (green)

□ Agricultural areas for cultivation, glass houses (green)

□ Resited farm holding= relocated farmstead (green)

□ Areas where soil, nature or landscape should be developed (green)

Forest areas (cyan)

Water areas (blue)

L Landscape protection area

N Nature protection area

□ Residential areas

□ Combination of two different uses, for example housing and green space

Appendix 5: Local Development Plan in Germany

Symbols (modified) and their explanations concerning green areas and open areas in Local Development Plan (□ symbol not drawn):

	Public green space (green)
p	Private green area
□	Playground
□	Parking place
□	Permanent allotment
□	Sport area
□	Camping place
□	Tent place
□	Open air swimming place
□	Cemetery
V	Traffic green
	Areas for farming
	Forests
□	Areas where nature and landscape should be protected, maintained or developed
□	Areas that should be planted with trees, shrubs or other vegetation
□	Trees that will be planted
□	Shrubs that will be planted

□ Areas that are connected to planted areas or to areas where existing trees, shrubs and other plantations should be preserved

□ Preserved tree

□ Preserved shrubs

□ Protection areas such as nature protection areas

□ Nature protection area

L Landscape protection area

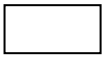
N Nature monument

Source: Landeshaupstadt Stuttgart 2004

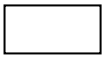
Appendix 6: Landscape Plan in Stuttgart Germany

Symbols (modified) referring landscape, nature and recreation in Protected Area Plan (□ symbol not drawn):

L	Landscape protection area
N	Nature protection area
ND	Nature monument, local nature monument
§24a	§24 a- Biotype single forest habitat, (usually forest biotype has no 24a- status)(dark green)
§24a	§24 a- Dry masonry habitat (stone wall laid without mortar)(light brown)
	Tree preservation order (red)
	Water preservation area, zones I, II and III (blue)
	Spring preservation area (light blue)
	Flood area (grey)
	Local green space corridor Linear green space in urban agglomerations, which may have intermittent agricultural and wooded areas, and is intended to prevent further agglomeration of the urban areas, green belt (Evert 2001) (light green)
	Green space corridors, linear green space for urban structuring, provision of various recreation facilities, and to improve air quality (Evert 2001) (dark green)



Regional green corridor, linear green space in urban agglomerations and is intended to prevent further agglomeration of the urban areas (Evert 2004)



Nature forest reserve

Gebiet der FFH-Richtlinie

Special protection area through the Council Directive 92/43/EEC (brown)

General facilities:

Recreation (light green)

Species and biotype protection, violet

Agriculture (orange)

The symbols in Measure Plan:

Forest (dark green)

Afforestation, process of planting a new forest in an area which has not been forested in recent times (dark green)

Widely and regularly-spaced fruit tree planting, unfenced, poorly maintained and predominantly on slopes or heavy soils, established with frost- and disease resistant varieties of different ages, scattered or isolated in the agrarian landscape. Especially characteristic of the landscape of Southwest Germany and Northern (Evert 2001) (dark green)

Shrub- and conifer complex (green)

Greenland complex, agrarian land for hay or fresh fodder (green)

Poor grassland (especially on dunes, on mountainous and alpine regions) (green)

Successions areas, altering habitat for flora and fauna (green)

Agricultural land including garden- and fruit cultivation (yellow)

Purified wine cultivation (orange)

Structural diversity multiplicity of three dimensional spatial elements in an ecosystem including the organisms living there, taxonomic diversity and diversity (Evert 2001) (brown)

Commercial horticulture, market gardening (light brown)

Resited farm holding, farmstead resettlement (light brown)

Standing water body, ponds, lake with motionless water (blue)

Wet land (dark blue)

Park and open, public green space (green)

Graveyard (green)

Sport area (green)

Swimming pool/place (green)

Farm for youngsters (green)

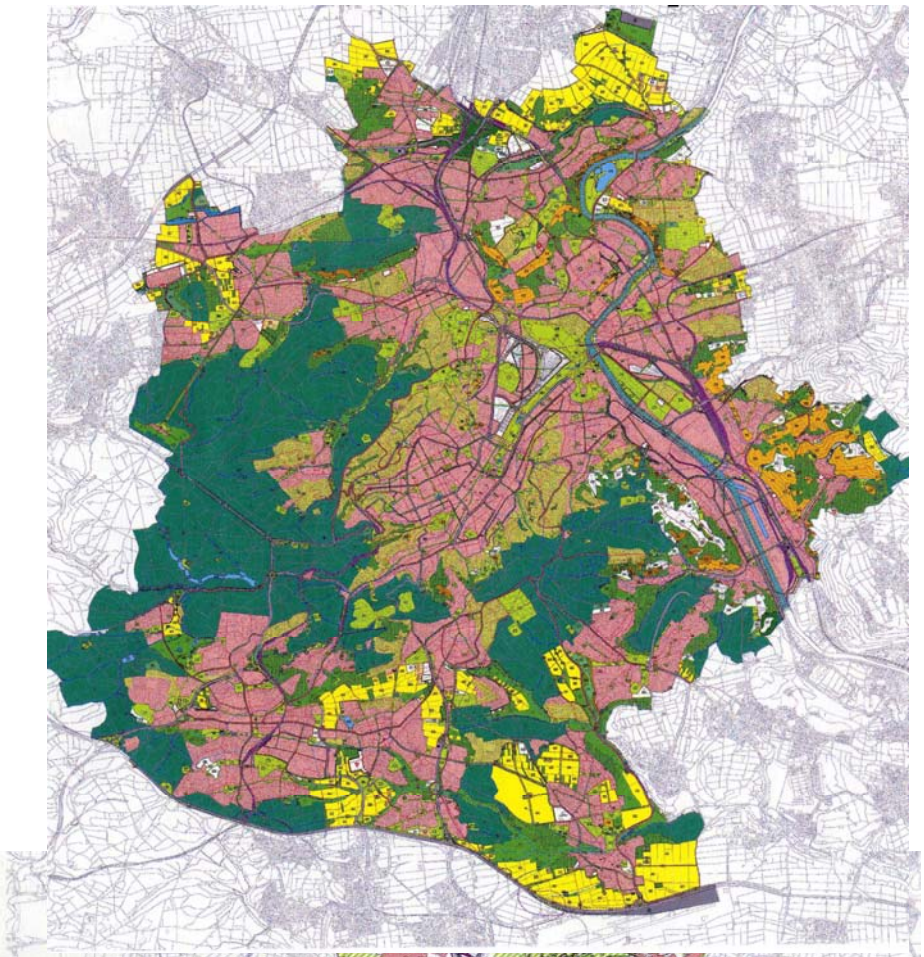
Other green spaces (green)

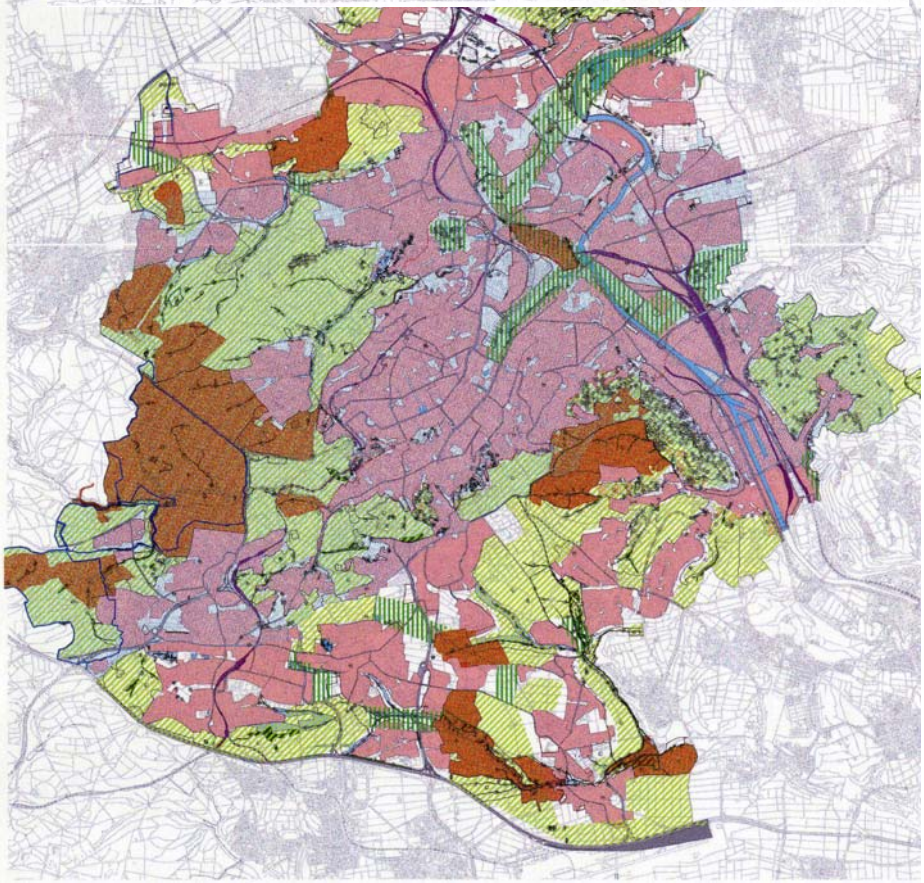
Land-use category for green houses (green)

Permanent allotment (green)

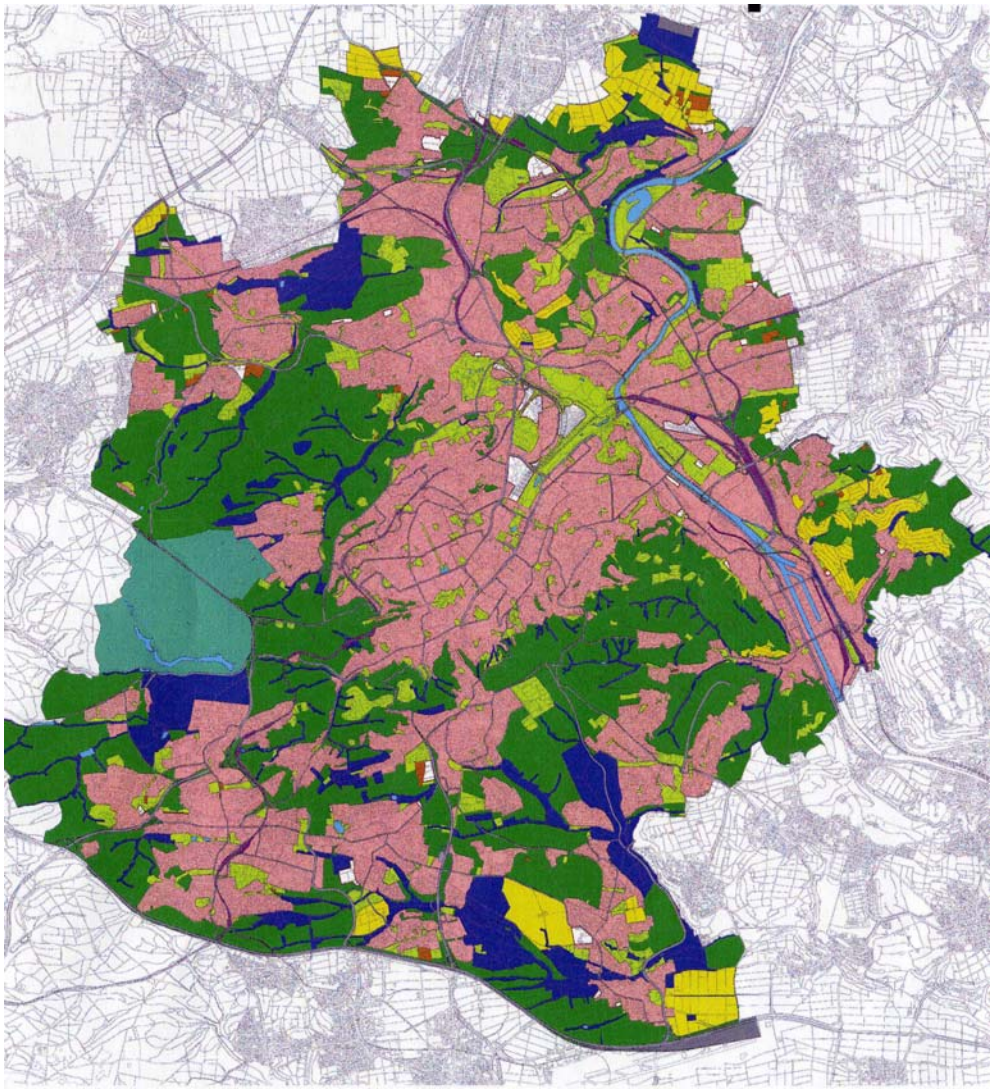
Source: Landeshaupstadt Stuttgart 2004

Appendix 7: Measure Plan and Protected Area Plan (Landscape Plan) in Stuttgart Germany





Appendix 8: Plan for main measures (Landscape Plan) in Stuttgart Germany



Source: Landeshaupstadt Stuttgart 2004

Appendix 9: Axial coding

The codes of interviews are referring to interviewees on different levels of the organisation

Stuttgart Management	Stuttgart Management	Stuttgart Landscape planning	Stuttgart Object planning	Stuttgart Object Planning
ST	**ST1**	**SL**	**S1**	**S2**
Tampere Management	Tampere Landscape planning	Tampere Landscape and Object planning	Tampere Landscape and Object planning	
TS	**TL**	**T1**	**T2**	

The axial coding

	NATURE IN CITY AND IN PLAYAREAS	TREES	ACCESSIBILTY	DIFFERENT AGE GROUPS	CITY ECOLOGY	PARTICIPATION	CONTENT QUALITY	DRAINAGE WATERS	OTHER ISSUES
ST	22 years theme: nature and water nature back to cities, ecological city,	Refrigerating climate, tree campaign	200-250 meters to the playgrounds	Places for youngsters and adults	Bees in special areas, flower meadows, fruit tree meadows wine cultivation areas	In all projects, inauguration of places	"Worth living", recreation		Colours, spring flowers, roof green, tree campaign- city pays the half, competitions and exhibitions already after the war, projects with twin cities, budget

									money settled for two years
ST1	Agenda 21		Green U, green network	Sociality	Preserving nature, dry wall habitat, forests products also income		Recreation, Well being and gardens, Lightig, safety	Drainage waters is part of planning and construction in all places	
SL	Habitat planning and compensation areas, ecological succession areas	Protected ø 30 cm, round 80 cm Trees planted big	Green network, green corridors, the value of green network against to the needs of building	Places for youngsters	Preserving nature areas and natural content, also mini areas 10m2 are important, wine cultivation areas important for climate in the city	Legal base for participation, internet, e-mail	Good environment, you have to pay for "green"	Drainage waters have to be considered	Green area 8-15 m2/inh., air steams should flow in specific ways to keep climate better, Compensation areas and compensation in every project, not enough land, new areas ready including green areas before people move in, expensive living close to green areas
S1	Playground strategy includes nature	Program of 1000 trees Size 30		Compound places for adults and children , places for girls, special money for	Small areas do not support biodiversity	Citizens involved in every project, quarter councils, workshops, mostly rebuilding, children	Budget limits, active physical exercise is importa	Drainage waters in planning, materia	Not many new areas, rebuilding, money

				~~the~~ themed playgrounds			nt	ls in compe nsation	from compe nsation, but not land to build (Necka r-project)
S2	Things for children, durable playgrounds, water and nature	New species are needed for the climate change		Places for seniors, chess playing on parks, youngsters farms		Youngsters are not interested, a planner develops, participants know what is happening, interaction, participation in parks, "godparents" for parks, children participate in different occasions, interaction develops	Durable play equipm ent~~s~~, benches and other construc tion 50 years, playgro unds can cost 60 €/m2, mainten ance classes, nowada ys more natural, flower meadow s		Playgro unds prior to areas where there are not much green People are active and protest if someth ing does not please
TS	Citynature is not always wanted near the backyard	Complete townscape with big trees		Places for three generations	Citynature is not always wanted to the backyard	Defined in development plans VAS, VAO	Safety, safety of equipm ents, lighting one place ready at a time, 100m2/i nh.	New costs, fencing is request ed	History and milieu, still park culture is not known among citizens , only playgro unds are familia r
TL		The size of trees are sometimes defined in Local Development Plan	Green network, classification of areas in land-use planning		Nature issues are very important- architects do not plan anymore themselves, Green network, classification of areas in land-use planning, tolerability of nature is valuated	Inquiries SoftGIS, plans are displayed in parks and feedback is received in many ways, citizens can have an effect on VAO	Good environ ment safety, enough buffer for global warmin g	Safety questio ns arise	Explan ations of landsca pe issues are not deman ded
T1	Nature city- all areas can not be preserved	Protected treelines means also that they are rebuilt in the future	KYMS in Preparatory Land-use Planning	Skate area program	The knowledge about nature in the city has increased. Some people call areas thickets. The	New areas, contacts are impossible to make, display in parks	Needs and safety are guiding themes, playgro und develop		Fencin g public and private are been conside red,

					classification of different habitats could change many attitudes.		ment plans, green area that include recreation should be separated in land-use planning, pocket parks are misleading information in statistics, landscape is important		native region thinking is supported by giving names along the history All possible areas are tried to be defined green areas in town planning
T2	Ecological durability	Use of big trees	Green net, classification and categorizing the green areas in land-use planning			Internet based inquiry about nature and constructed green areas, display of plans in parks	Active people in supportive environment, health, classification can also be used in old land-use plans, necessary buffers for global warming		Not enough money everywhere, prior to the areas with many people and not much green Citizens do not want much changes or implementations in their vicinity

Appendix 10: Selective coding

1. NATURE

Tampere

Shortages in planning processes concerning landscape and nature TL

MEANING OF NATURE IN THE CITY IS CHANGING
PRESERVING EXISTING NATURE

Stuttgart

Returning nature into the city, ST
Building areas that are natural (in German: Naturnahe) ST,S2
Preserving existing nature ST1
The meaning of nature is acknowledged ST, ST1, SL, S1,S2
Nature is mentioned in different connections and for different habitats. Different types and habitats are mentioned by name S1,ST1,SL

RETURNING NATURE
PRSERVING NATURE
DIFFERENT HABITATS AND LIVING ORGANISM COMMUNITIES ARE DESCRIBED

2. CLIMATE

Tampere

Macro climate T2,
Global warming T2, SL

GLOBAL WARMING IS ACKNOWLEDGED
PROBLEMS DO NOT ARISE DUE TO THE PARTICULATES OR MICRO-CLIMATE

Stuttgart

Macro- climate, global warming S2
Micro – climate ST, ST1, SL

EXPERIENCE ABOUT GLOBAL WARMING
PROBLEMS OF MICRO –CLIMATE, PARTICULATES

3. TREES

Tampere

Townscape, trees important TS, TL, TI, T2

BUILDING THE TOWNSCAPE

Stuttgart

Townscape, trees important SL, S1
Climate ST, S1, S2

BUILDING THE TOWNSCAPE
GLOBAL WARMING AND IMPROVING CLIMATE

4. CONTENT, QUALITY AND QUANTITY

Tampere

Sociality, safety, activity TS, T2
Quality (classification, landscape, expense factors) TS, T1,T2, TL
Quantity(amount, misleading statistic) T2, TL

SOCIALITY, HEALTH
PURPOSEFUL PLANNING
GREEN AREAS THAT HAVE NO VALUE OF RECREATION ARE COUNTED INTO STATISTIC

Stuttgart

Content (social, aesthetic, active)ST, ST1, SL, S1, S2
Quality (frameworks for expenses, recreation, aesthetic)ST, S2
Amount (apprehension about quantity, money but not land/compensation) SL, S1

SOCIALITY AND HEALTH
PURPOSEFUL PLANNING
LACK OF LAND, EXPIRATION

5. PARTICIPATION

Tampere

Citizens are accepted to participate in planning processes TS, TL, T1, T2
Difficulties to meet people in new residential areas T1
New methods of participation have been developed, Internet base TL, T1, T2

PARTICIPATION IS DEVELOPED
MANY NEW AREAS AND DIFFULTIES TO FIND PEOPLE TO PARTICIPATE

Stuttgart

Citizens are accepted to participate in planning, participation of children are mentioned in many connections ST, SL, S1, S2
Developing the process (a designer develops in interaction)S2
Youngsters are not interested in participation S2

PARTICIPATION IS BASED ON CONTACTS
CITIZENS AND INHABITANTS ARE AVAILABLE IN "READY" RESIDENTIAL AREAS

6. ACCESSIBILITY

Tampere

The green network and the connection to Preparatory Land-use Plan are defined, classification TL, T1, T2
All areas that are not suitable for building areas are parks in land- use planning, and this does not guarantee accessibility T2

ACCESSIBILITY THROUGH GREEN AREA NETWORK
ALL GREEN AREAS DEFINED IN LAND-USE PLANNING DO NOT SUPPORT ACCESSIBILITY

Stuttgart

The distance of playgrounds in connection to residential areas is defined Green U, ST, SL, ST1
Priority to the places with less green S2

ACCESSIBILITY THROUGH GREEN AREA NETWORK
“LACK OF GREEN”

7. DRAINAGE WATERS

Tampere

Increasing costs TS
Influence on safety TS, TL

NEW ISSUE
SAFETY QUESTIONS ARISE

Stuttgart

Attendance in every project ST1, SL, S1
Materials, evaluating S1

ATTENDANCE OF DRAINAGE WATER QUESTIONS IS NORMAL
CONSIDERED IN EVERY PROJECT INCLUDING MATERIALS

8.COMPENSATION SYSTEM

Tampere

Compensation is not mentioned

Stuttgart

No planning projects without the question of compensation ST1
Not enough land to implement compensation S1

EXPIRATION OF LAND

9. COMPETITIONS AND EXHIBITIONS

Tampere

Competitions and exhibitions are not mentioned

Stuttgart

Many competitions and exhibitions are mentioned, promoted horticulture and developed parks in the city ST, ST1

HERITAGE
PARKS, GREEN AREA DESIGN

10. ATTITUDES CONCERNING GREEN AREAS

Tampere

Citizens are not familiar with landscape parks culture, only playgrounds are known better TS
Promotion of Native region thinking has been tried T1
Explanations of landscape issues are not demanded TL
All possible areas are defined as green areas in town planning T2
Not in my back yard, NIMBY T2

ATTITUDES OF CITIZENS
ATTITUDES CONCERNING GREEN AREAS IN LAND- USE PLANNING PROCESSES

Stuttgart

Not many new residential areas, work is mostly re-building S1
There is not enough money for every project, priority to the places with less green S2
It is most expensive to live in the city areas with green areas SL
No planning projects without the question of compensation SL
Not in my back yard, NIMBY S2

DEFICIENCY OF LAND AND GREEN
VALUES OF GREEN TO CITIZENS
VALUES OF GREEN IN LAND-USE PLANNING PROCESSES

Appendix 11: An example of Local Development Plan including compensation (in German)

FNP 2010 Geplante Siedlungsflächen
LSP 2010

Umwelterheblichkeit Eingriffs-/Ausgleichsregelung

Stadtbezirk:	Plieningen	**Realnutzung:**	landwirtschaftliche Nutzung (Streuobstbau/-wiesen)
Lage:	Friedhof Plieningen		
Größe:	3,8 ha		
Nummer		**Rechtlicher Status:**	Außenbereich,Aufstellungsbeschluß Bebauungsplan

Übersichtsplan

Planungsabsicht

FNP
Erweiterung Friedhof Plieningen

LSP
Bei Berücksichtigung des Streuobstbestandes ist der Eingriff vertretbar.

Eingriff

Orts- und Landschaftsbild	Verlust von Teilen des Streuobstgürtelrestes von Plieningen.
Erholung	Verlust von ortsnahen Erholungsflächen.
Flora und Fauna	Streuobstwiesenbiotop (Beeinträchigung der Biotopverbundfunktion), teilweise Ackerland.
Stadtklima	Klimaaktive Freifläche mit direktem Bezug zum Siedlungsraum, hohe Empfindlichkeit gegenüber Nutzungsänderungen, Kaltluftsammelgebiet.
Wasser	Inanspruchnahme von Flächen mit einer mittleren Grundwasserneubildungsrate von 4 l/s km^2
Boden	Verlust/Beeinträchtigung folgender Bodenfunktionen durch Umnutzung/Versiegelung: ● Potential als Standort für natürliche Vegetation (sehr produktiv) ● Potential als Puffer und Filter für Schwermetalle (sehr hoch untergeordnet hoch).

Ausgleich

Minimierung des Eingriffs/ Interne Ausgleichsmaßnahmen
- Erhalt von Teilen des Streuobstwiesenbestandes, Baumschonbereiche (Flächen ohne Gräber) innerhalb des Friedhofs festgelegt. (F/F)
- Neuanpflanzungen von Obsthochstämmen (F/F)
- Wiederherstellung der Wegebeziehung Ortskern - Holderweg (E)

Externe Ersatzmaßnahmen
- Herstellung von Feuchtwiesen entlang der Körsch im Bereich der Parkerweiterung Exotischer Garten (F/F)
- Anlage eines Streuobststreifens auf der Ostseite der Mittleren Filderstraße (F/F)

Verfahrenshinweis:
Bei sorgfältiger Grünordnungsplanung für den Friedhof ist längerfristig ein weitgehender Ausgleich möglich. Als Ersatzmaßnahme bietet sich die Anlage einer Streuobstwiese zwischen FW 45 und Mittlerer Filderstraße an.

Source: Landeshaupstadt Stuttgart 2004

Appendix 12: The categories of green areas in Tampere

Source: Tampereen kaupunki 2008 b

Appendix 13: The maintenance classification of green areas in Tampere

Source: Tampereen kaupunki 2008 b